

The National Locksmith®

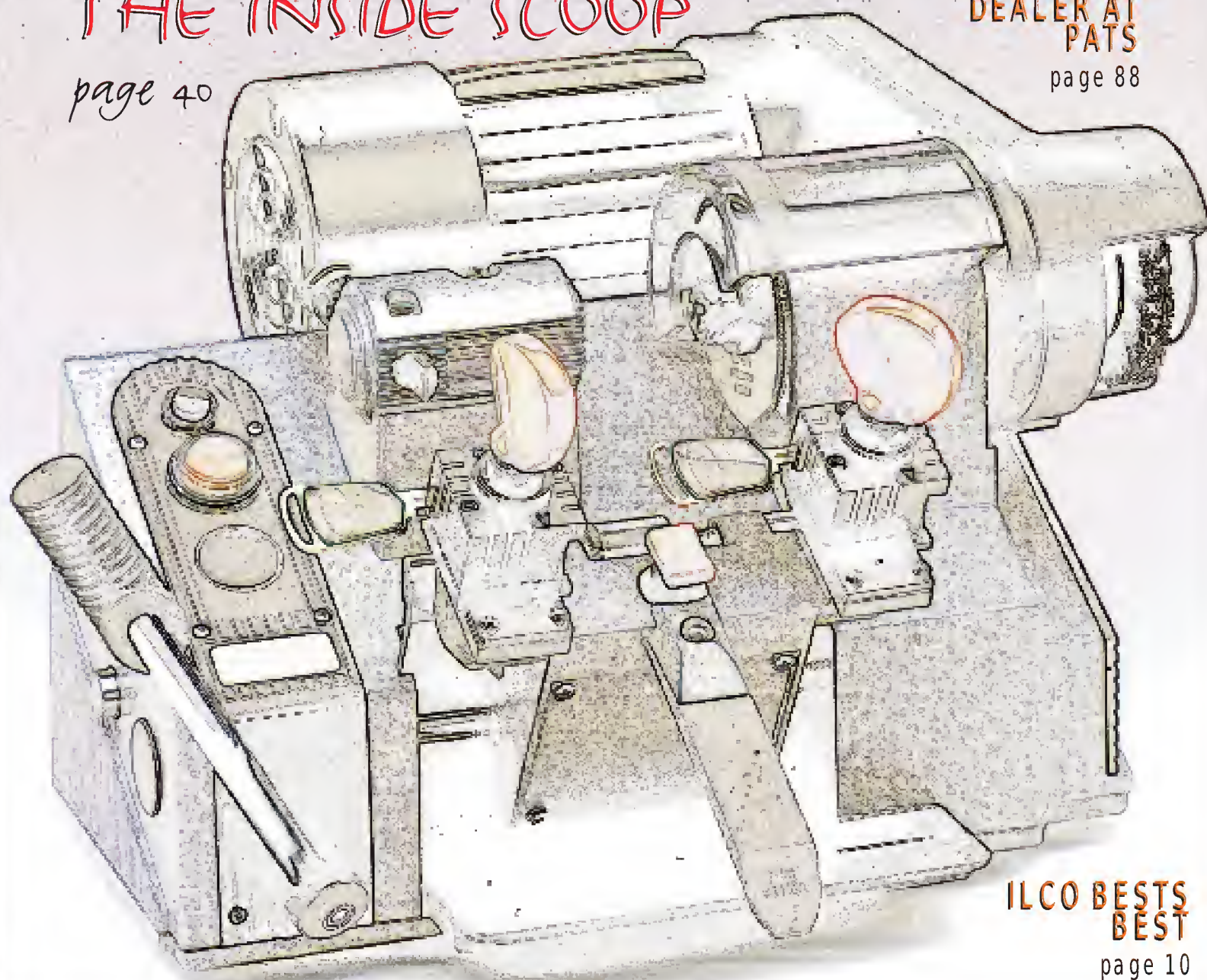
October 1995
Volume 66, No. 10

**KEY MACHINES...
THE INSIDE SCOOP**

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**BEAT THE
DEALER AT
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**ILCO BESTS
BEST**

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On The Cover

Behind every successful Locksmith stands a key machine. Join our coverage of the machines that make the Locksmith.



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Commentary

A whole passel of you reading *The National Locksmith* this month are new readers, formerly subscribers to the Reed Reporter. Again, I want to welcome you into our family, and if you are a previous subscriber, welcome back! I think you will find a great number of changes have been made to this magazine.

And I think you will agree with me that we now offer the best articles written BY locksmiths FOR locksmiths. In fact, you can read Bill Reed's column following right after the Letters column. Plus we are very pleased to welcome locksmith writer Sal Dulcamaro to our technical staff. In the upcoming months we're planning to help you learn ever more about the wonderful world of locksmithing!

The insurance industry has released the list of the most popular ten cars to be stolen in 1994. In order of popularity, they are, drum roll please...

Honda Accord; Oldsmobile Cutlass Supreme; Ford Mustang; Toyota Camry; Oldsmobile Royale; Honda Civic; Chevrolet Camaro; Cadillac DeVille; Chevrolet Caprice; and Toyota Corolla.

The good news is that 1.2% fewer cars were stolen in 1994 than in 1993. And 7.1% fewer cars were stolen in 1994 than in 1991. So the improvements in security the automakers are conducting are having an effect.

Most often, a stolen car is misappropriated for parts. Driven to a chop shop immediately, vehicles are stripped for parts. Hot selling accessories like airbags, radios and seats are especially in demand. It only takes about 30 minutes to totally strip apart a car.

The National Insurance Crime Bureau gives high marks to GM's Pass-Key system for decreasing thefts. But get this. 31% of car owners still do not lock their doors. And an incredibly optimistic 11% sometimes leave their keys in the ignition.

Coming up from November 15th to 19th is the popular Yankee convention to be held this year at the Rhode Island Convention Center. There will be over 150 booths, classes and a PRP exam. Call 800-209-8266 for more information. This is one show you don't want to miss!

Finally, starting this month you will notice that we have changed the name of the Newsmakers department to Security Café. We invite you to drop in to the café, pull up a chair and take a look at some of the latest product introductions in the locksmith industry. Just be sure you don't drink too much!



Marc Goldberg
Editor/Publisher

**Have
a computer?
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America Online: NATL LOCK
Use the above address if you are on AOL.

Internet: natllock@aol.com
Use the Internet address if you are not on AOL.

Marc Goldberg

OCTOBER 1995

Letters

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length.

S. Parker Apology

S Parker Hardware would like to take this opportunity to clarify a misunderstanding that has arisen in the industry because of an advertisement that appeared in the April and July 1994 issues of *The National Locksmith* magazine.

The advertisement purports to quote the Associated Locksmiths of America's Keynotes magazine as making certain statements comparing an S. Parker Hardware Grade 2 lock to a Grade 1 lock manufactured by the Schlage Lock Company. In particular, the advertisement purports to quote Keynotes as stating that the S. Parker Hardware Grade 2 lock "was equivalent" to the Schlage Grade 1 lock and that "the only difference is the price."

These statements were not made by ALOA or Keynotes magazine. ALOA did not authorize S. Parker Hardware's advertisement, nor did it authorize S. Parker to make reference to ALOA or to ALOA'S Keynotes

magazine. S. Parker Hardware regrets the error. Of course, S. Parker Hardware would like to assure the industry that it stands by the quality of its locks.

*Charles I. Silberman, President
S. Parker Hardware
Manufacturing Corp.*

Shear Opinion

One of the great things about this country is the fact that we all have the right to disagree with each other. I just read the article that Managing Editor Tom Seroogy wrote for NLAA's Automotive Edge newsletter in Joe's Garage on Shearhead Bolts. He mentions that one method for removing shearhead bolts "though not the recommended" is to drive a Torx head bit into the hole and remove it that way. He says use the proper tool for the proper job.

Why would anyone want to cut a slot into the head of a screw with a Dremel or a hacksaw and then re-install that screw into a customer's car? I personally think that there are fewer thieves running around out there with a set of Torx drivers than there are with a straight blade screw driver. I have been using the Torx method for many years with no adverse effects and feel that my customers still have some level of security on their columns when they leave our shop.

I can see where some people may have problems when trying to do this using low grade tools. When I use the method, I drill the hole in the bolt the same size as the inside dimension of the Torx driver so that all it is doing is cutting teeth into the bolt, and not trying to force the driver into the bolt. Then I make sure that I'm using a good quality Torx driver that



won't break off in the screw. (I use Snap On Torx drivers.)

In all the years that I've been doing this I can only remember breaking one Torx head driver off, and that was because I drilled the hole in the bolt too small. Remember, when you are servicing a customer's vehicle you want to return it to as close as possible to the original condition as it was when they brought in to you. If you can't replace the screws with a screw that is still hard for a thief to remove, then you should replace the shear bolts with new ones. Don't make it easy for someone to walk off with your customer's car with just a couple of screw drivers. *Bob Harris
E Mail*

The Right Lube

An online reader asked what lubricant is best to use on combination lock wheels.

Last I knew, LaGard was recommending no lubrication in their locks, because of the Teflon coating applied to bearing parts.

S&G insists on a thin coat of General Electric G-322L Versilube on these areas inside the lock case:

The National Locksmith
1533 Burgundy Parkway
Streamwood, IL 60107
Attn: Editor

- Inside and outside of the wheel post.
- Surfaces of the case that bear against the lock bolt.
- Torque adjuster ramps or the feet of the torque adjuster.
- Bearing surface of the lever screw.
- Underside of the lever bushing where it contacts the lock bolt.

All of the above areas need to be wiped clean before lubrication, and only a thin (virtually invisible) film of lubricant should be used. As our lab guys like to say - anything over two molecules in thickness is a waste! Excess lube tends to creep into areas where it does more harm than good. As Ray Hearn pointed out in his message, lubrication on the flys or the wheel centers where they ride can seriously and adversely affect lock operation.

Prior to lubrication, most locks and parts can be cleaned by wiping them with a clean cloth. For stubborn deposits, use a spray-type electrical contact cleaner or a naphtha solution. Pay attention to the cleaner manufacturer's warning labels. Only use cleaning solutions that dry quickly and leave no residue of their own.

One additional lubrication spot. It doesn't hurt to use a dab of any non-petroleum base grease on the underside of the dial hub where it rides in the dial ring bearing. This isn't a required lubrication area, but it does tend to quiet the dial operation.

Group 1 and 1R locks are supposed to be lubricated with Dow Corning MolyKote (Gn Metal Paste). This material was substituted a few years ago to allow the locks to pass a tortuous military test procedure. MolyKote stands up to extreme temperatures better than Versilube. As a normal day-in, day-out lubricant, I think Versilube is superior. It tends to creep much less than MolyKote.

This may be more than you wanted to know about lock lubrication, but it's good to ask about anything you are uncertain of. *The National Locksmith* provides a great service to us in providing this forum for an open exchange of technical information and opinions.

S&G provides a helpful book on lock lubrication and troubleshooting procedures for combination locks. Free copies are available on request.

Call (606) 885-9411 and ask the operator to connect you with the literature request line. This is an automated voice mail system. Ask for "Dialing Diagnostics."

*Sargent & Greenleaf
E Mail*

Resigned On Ethics

We are writing this letter to explain why we both have resigned our office and membership in the PTSLA. Starting at the beginning, the association was formed by six or so locksmith's back in February of 1971. The goals and ideals were that they assemble for fellowship and pass information between each other to inform and educate themselves. They also wanted all members to be of sound character and honest individuals. This information was passed to me by my mentor, a Mr. Charlie Pauley. He was one of the original members and was a big influence in my life. I first found out about this organization from him in 1975, but it took him three years before he finally invited me to a meeting. He said that he believed that I was serious about the trade and would be a good member. He was an honest man who didn't take advantage of anyone and did not tolerate any "hanky-panky." But he also was the one who would say "time for an outside party" after he heard the treasurer's report.

He would have been very sad to hear about what transpired at the June meeting. If you have not read the editorial in *The National Locksmith*, I will explain what happened. The editorial concerned a Maine locksmith who copied a book and sold it to others for profit. This was according to Mr. Marc Goldberg. I spoke to the man involved and he offered no explanation. I found out that he had resigned from ALOA, so I asked him if he also would do the same for the PTSLA. He declined, so I was left with no alternative but to bring it before the membership. The bylaws state that a breach of ethics shall cause a vote to be taken for removal from the association. It should have been cut and dry as the member had admitted to the deed. After a main motion and many amendments, they decided that he was to be removed for one year and on probation for the second year. He also is not allowed to hold office for a period of five years. This was because he was a very much liked

person and was a lot of help to the association. The members set a precedent by not following the bylaws. This was not what our original members had intended. A person in this field of work has to be above reproach and this weakens the integrity of the association.

For this reason both of us resigned our office and membership the following day. Having been a member for a combined 26 of the 24 years that the PTSLA has been around, this was a very difficult choice to make, but the only one we could make considering the circumstances. We both believe that you cannot compromise ethics for friendship, which is what happened at the meeting. The day after our resignation, one member who had been at the meeting called and told us of another instance where he had been approached and offered copies of Ford keys at a better price than in the catalog. This only serves to reinforce our decision, as now we are looking at two infractions of ethics from the same member.

*Richard and Roma Vigue
Maine*

TRL



*It's not safe
unless it's
Schwab Safe.*

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Reed Report



Bill Reed

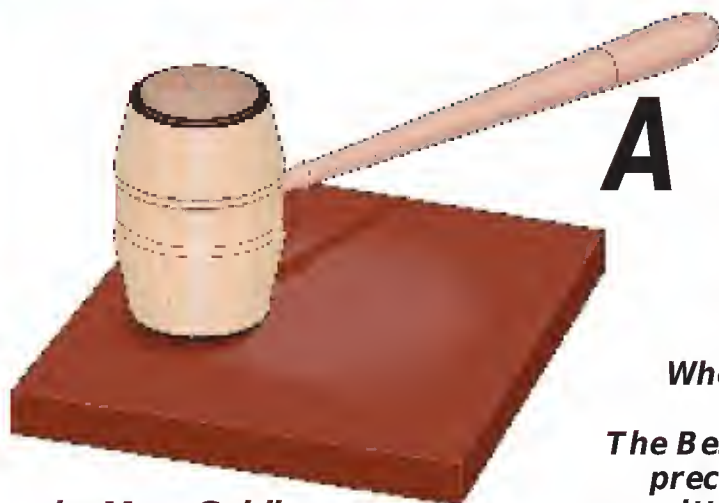
Scattershooting while wondering whatever happened to... Debra Schrader

- My hat is off to Ray Swear of Moses Lake, Washington. We recently did a seminar there, and Ray arranged for a car lot to open cars... the entire lot! Steve Young thought he had died and gone to heaven. Way to go, Ray!
- The hotel lock business is booming and I hear nothing but good things on the lock by Ilco. Check it out!
- I just received my membership in the Dallas Chamber of Commerce. Each of you should look into your local chamber and check out the many benefits it has to offer. It will bring in new business for you, too.
- There are still many shops around that are NOT full service shops. There are shops that do nothing but open cars, while there are others that do everything BUT open cars. The best thing you could ever do for you, your pocketbook, and your company would be to become a full-service lock shop. Many locksmiths have certain employees that do only certain jobs. Specialists, so to speak. Several of them use firemen. They're off two or three days in a row, and the shop saves up the jobs for them. Example would be safe deposit box locks. Then, you can always sub-contract. Don't be afraid to do this. Just be sure your subcontractor is good at what he does or it will reflect on you. I put myself through college doing this. There are many ways to become a full-service shop, and its much better to say "yes" to your customers then for them to have to go somewhere else. Believe it or not, it is possible to be Jack-of-all-trades, and master of them all.
- I've said it before, and I'll say it again - there is some real garbage legislation proposals floating around our great country. Come on people, get serious. We're about to really be socked by the attorneys and politicians, and no one seems to care. Look at Illinois and what they are proposing. Closest thing to perfect that I can come up with (As far as legislation goes, anyway).
- While looking at legislation, start looking at education also. If you're letting your employees file down plugs and other disgusting habits, you're just as guilty as they are. Teach them - train them - stay on them until they learn.
- TRUST Seminars will be coming your way soon. Watch for us. October - POLA Convention on the 14th and 15th; Tri-Regional on the 20th; Denver on the 28th.
- Many are asking for my phone number to order books or to just say "Hi." You can call me at (817) 481-5455. You can also use this number for fax.

Yours for better security,

Bill Reed

TNL



by Marc Goldberg

A Patent Battle: Best vs. Ilco

*When do the rights for protecting a keyway
extend their bounds?*

*The Best vs. Ilco battle over keyways may have set
precedent, defining and establishing the once
unwritten ground rules of restricted key production.*

Recently, locksmiths have been making inquiries about how the recent outcome of the Best vs. Ilco lawsuit may affect other patented key products. While there is no short answer, we will try to address a few of the issues at hand.

To review, Ilco began to manufacture blanks of a patented Best key. Best sued Ilco for infringing on their patent. In simplified terms, Ilco won the lawsuit. This decision benefits the locksmith because it ensures your ability to purchase aftermarket key blanks at a reasonable price.

The Best vs. Ilco case involved two different kinds of patents, design and utility. Each is a different animal, but in this particular case, both protected the same key copied by Ilco. Thus, both patents were infringed and Ilco was brought to court.

The whole idea of a patent is for the government to promote new ideas and inventions by granting a temporary monopoly on the production of the new idea. This monopoly is granted in the form of a patent.

If you're having trouble understanding the difference between a utility patent and a design patent, think of a lockset. A design patent protects a knob or lever design made by a particular company. (Example: the Schlage Tulip knob shape.) A utility patent protects an innovative mechanism found inside the lock chassis.

The monopoly of manufacture lasts 14 years for designs (shapes) and 17 years on mechanisms. After that, they are fair game for anyone to copy and sell.

We'll cover the design patent first. In Best vs. Ilco, the court ruled that keyways and key sections are "not proper subject matter" for design patents because they are purely functional. This had been conventional wisdom in our industry for as long as I remember, although no one in the industry was ever able to produce any actual evidence, in the form of a court ruling (case law) to that effect. You know how it works. If all your colleagues tell you the same thing, it must be true, right?

Best took the industry by storm in March 1992 when the first of what was to be 68 design patents began to issue covering 34 key sections and their corresponding 34 keyways. That was a signal that one of three things had happened: 1.) It indicated the idea that design patents were not allowable for key sections was simply one of those myths perpetuated by word of mouth over the decades. (Remember when every locksmith "knew" it was impossible to pick or impression a GM sidebar cylinder?) OR: 2.) The U.S. Office of Patents and Trademarks had changed its official position and was now allowing them, OR: 3.) The patent examiner was inexperienced and was bamboozled by Walter Best's affidavit stating that the shapes were purely ornamental and not dictated by function (one of the tests to qualify for design patents) when the examiner originally rejected Best's applications.

Best agreed to allow all 68 design patents to stand or fall based on the one key infringed by Ilco. Therefore, Best lost all 68 design patents in one fell swoop by this ruling.

For any company who has used only design patents to protect its keyways and key sections, this ruling

is a dangerous precedent. Still, until someone infringes another company's patent and is taken to court, the patents remain valid and protect all "patented" restricted keys.

Now, for the utility patent. The utility patent 5,136,869 was declared invalid based on what is legally termed "prior art." Prior art is something that either existed in the market place or had been disclosed to the public in earlier patents or in some other form prior to the stated date of the "new" invention.

Of the several claims in the Best patent, Best agreed to let the case rest on one in particular, although Best changed the focus several times from one claim to another. In short, based on physical evidence contributed from lock collections from various industry personnel, together with expert depositions and courtroom testimony, the judge was able to see that there was nothing new in Best's utility patent.

Every feature (shoulder engagement in key slot, clearance gap between key section and keyway and the so-called "thin-walled offset portion" of the key blade) had been done before or would be "obvious to anyone of ordinary skill in the art." Nothing new. Nothing innovative. Nothing patentable.

How does this affect Assa, Medeco, Peaks, Primus, Dom and similar patented key products? Positively, because it removes what they consider a sham competitor from their midst. All these cylinders have special innovative (more or less) mechanisms. Their primary protection for these mechanisms is the utility patent, although some have secondary protection in the form of design

patents on the keys (not just the key section, as in Best's case). The possible negative effect is that a utility patent covering keys has actually been overturned.

Traditionally, when key control patents have been infringed, the manufacturer threatens to take the infringer to court if he doesn't cease production immediately. Generally, the infringers have been small time locksmiths or would-be manufacturers who just stop making the keys. To my knowledge, all such litigation has been settled out of court. The little guy couldn't afford to go head to head with the big corporation. In several cases, the manufacturer reportedly "paid" the little guy off to quit making the keys. So, to my knowledge, none of the other so-called stronger patents have actually gone through the system for bootleg keyblanks as Best vs. Ilco did.

In short, we've seen David and Goliath stories in the past. However, in the case of Best vs. Ilco, we have King Kong vs. Godzilla. Two men and two companies fighting for principles they believe in, neither wishing to back down or be bought off. Aaron

didn't copy Best's key to make money selling blanks to locksmiths. He did it because he believed these patents should never have been granted by the government and infringement was the only way to bring the matter before a judge.

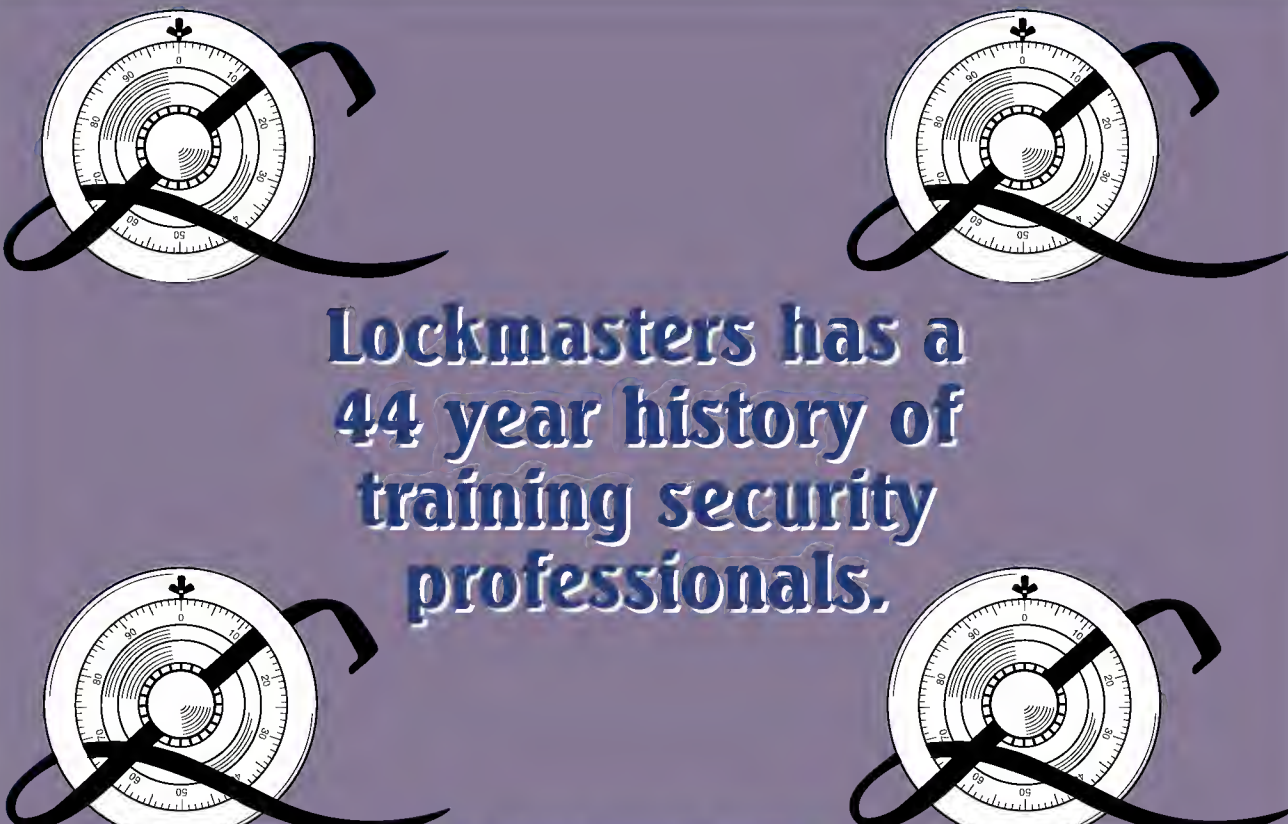
Most industry experts believe that utility patents covering Primus, Peaks, Medeco, Assa and others are strong and represent true inventions. However, some experts do feel that some of those utility patents could be overturned based on prior art. Some feel that keys can be made to operate some of those cylinders in a way that doesn't infringe on the patent. But who's willing to spend the bucks to fight those corporate attorneys when they start sending their threatening letters? Rumor has it that Ilco's expenses in this case were \$1.5 million as of the trial in March!

It isn't over yet. We must await Best's next move. Will they file for an appeal? Will they go through with the appeal after the filing? Can they win if they do appeal, or will it just buy them another several months of time to bring a "real" patented product to market?

And what about the second utility patent (5,272,895) mentioned in Best's letter of August 4 to its PKS customers? That patent is what's called a "continuation in part" of the utility patent which was overturned. It has many claims, but it's still all smoke and mirrors around the same prior art core and key! Yet legally, this patent stands on its own and must be challenged separately. Technically, Ilco has not infringed on the second patent because they stopped making the keys before it issued. Therefore it remains unchallenged and in force protecting Best's keys.

Will Aaron Fish make another Best PKS key to call Best's bluff and bring the second patent in front of a judge? If so, will Best bother to sue? If none of the claims of the first patent stood up in court, how can the second patent stand if it covers the identical core and key?

We all have to wait and see. Meanwhile Best is rumored to be considering renaming PKS (Patented Key System) to RKS (Restricted Key System). **TRL**



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training security
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SECURITY CAFÉ

16 New 1200PCH Punch Machine™ Cards From HPC

- CARD-PX101 New Ford Eight Cut
- CARD-PF303 Ford Aspire (Kia) (10 Cut) (B Series)
- CARD-PF302L Hyundai (8 Cut) (T Series)
- CARD-PF302R Hyundai (8 Cut) (S Series)
- CARD-PF301L Kia/Hyundai (7 Cut) (Y1-2000 Series)
- CARD-PF301R Kia/Hyundai (7 Cut) (X1-2000, Y7001-8200 Series)
- CARD-PF118 Chrysler-AMC/Renault/Peugeot (Secondary) (M, N, P, R, S)
- CARD-PF71 Honda Door/Trunk (thru '76) (Series 111111-444444)
- CARD-PF70 Honda Ignition (thru '76) (Series 2001-4949)



- CARD-PMC51AR Kawasaki Cycles (6 Cut) (A Series)
- CARD-PMC51AL Kawasaki Cycles (6 & 7 Cut) (B Series)
- CARD-PMC37R Honda Cycles '83+ (C,D)
- CARD-PMC37L Honda Cycles '83+ (A,B)
- CARD-PMC50 Kawasaki Cycles '79+
- CARD-PMC71 Suzuki Cycles '88+
- CARD-PF102 Chrysler-AMC/Renault '81+ (Secondary) (non-letter)

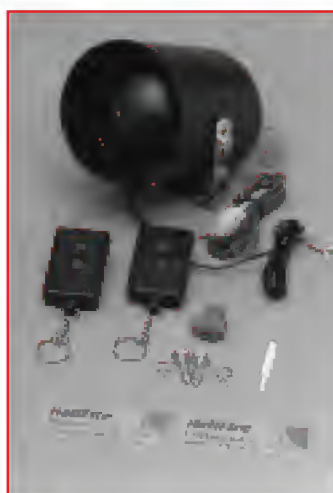
**For FREE Information
Circle 381 on Rapid Reply**

Major Manufacturing's LSA-1

An assortment containing 18 of the most commonly used and misplaced screws that are required when



servicing locks. The LSA-1 kit contains mortise cylinder cam screws, cylinder set screws, face plate screws and others that can be missing or lost when on the job. Also included are the Allen wrenches needed for the Allen screws used in the kit. A handy assortment that



necessary installation hardware.

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Security Café

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TOOLS, TECHNOLOGY
& EQUIPMENT**

will pay for itself the first time that its used. Refills are available in packs of 10. Available from your distributor.

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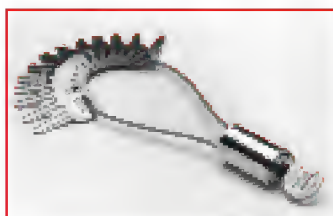
Harrison Electronics HE-250

Harrison Electronics introduces its newest car alarm - The Hellfire-250. Added to a long line of popular and successful models, the 250 provides safety, security and satisfaction at a minimal price. Equipped with cutting edge features such as Quiet Control remote chirp delete, audible warning beep, Versa Shock and Tamper Memory, the HE-250 includes all the

Key-Keeper By Monarch

Monarch Tool and Manufacturing introduces the Key-Keeper to secure keys in a tamper evident manner.

Tested to over 250 pounds of pull, the nylon-covered, steel cable will make any attempt to remove individual keys apparent. The seamless aluminum body holds the lock in a recess,



eliminating any obvious point of attack short of destroying the lock, the body, or the cable.

Key-Keeper is available with three different levels of lock, Ace, Duo or Medeco. Stock length is 12" and 18". Custom cable lengths are available for larger lots of keys or for other special locking needs which may require the flexibility of the cable.

**For FREE Information
Circle 384 on Rapid Reply**

New Redi-Line Generators

Pacific Scientific's Motor & Control Division has announced that all Redi-Line generators are now equipped with new demand start circuitry for use with electronically controlled variable speed power tools. According to Pacific Scientific, Redi-Line can reliably start all known load conditions.

Redi-Line generators feature the unique battery-conserving capability to start on demand, providing instant power only when the tool's trigger is engaged. A new printed circuit board has been designed into both the 1600 watt and 500 watt Redi-Line models. A retro-fit



kit is also available for updating older models.

For 25 years, Redi-Line power conversion products have operated from vehicle batteries to reliably run 120 VAC power tools and other electrical equipment where commercial power is not conveniently available. Redi-Line offers a full line of 350 to 1600 watt generators and a 2200 watt solid state inverter through a national distribution network.

S E C U R I T Y C A F É

Encased in rugged, steel enclosures, and constructed for long life with minimum maintenance, Redi-Line products are backed by a two year warranty. An effective alternative to gas-oline engine-driven generators, Redi-Line products are compact, whisper quiet, and emit no fumes or exhaust.

**For FREE Information
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Morse Patrol Software II

Morse Watchmans Inc., announces its new MPSII software. The Morse Management Patrol Software is an integrated software package that will take the information collected from the Morse Watchman Data Recorder and convert the data output into useful selected reports. All processing, inquiries, and sorted reports are accomplished by toggling options on a single screen.

With this new package, you will be able to collect and compile all of the data recorder's transactions into a database residing on your hard drive. From this database, you can print reports on a daily, weekly, monthly or any other basis you choose. You can select your records from a fixed or variable set of selection criteria on some or all of the various types of tour conditions and then print a detailed report.

**For FREE Information
Circle 386 on Rapid Reply**

ENTRACOMP® 28SA By Secura Key

The ENTRACOMP® 28SA, provides the most features at a very competitive price compared to any other stand alone card reader system in the industry.

The unit is a self-contained, single passage-way, card access control unit that allows up to 65,000 individual users. Up to 15 card time zones and one door unlock time zone are



included. Each of these time zones is programmable in 1/2 hour increments on a seven day plus holiday week schedule. Thirty-two holidays may be programmed. Each time zone may be limited with specific start and/or stop dates if needed. Up to 5800 date and time stamped transactions are stored by the unit in non-volatile memory for later examination.

The system provides for up to 16,000 limited use cards. Cards may be programmed to work for a specific number of uses or specific number of days. These restrictions may also be subject to time zone and start and stop date requirements.

**For FREE Information
Circle 387 on Rapid Reply**

Knox Padlocks

Constructed of heavy duty cast brass and featuring hardened steel shackles, Knox padlocks provide an additional benefit—they are opened using the same master key as your Knox rapid access key vaults, document and key cabinets, and key switches.

Perimeters are often secured by chain and padlocks. Emergency services or private security responds and can easily enter a building by accessing the key stored in the KNOX-BOX®; electric gates can be



opened using Knox key switches; and, using the same key, padlocks keep perimeter secure until emergency access is required.

Knox standard padlock features a 1-3/4" length, 3/8" diameter shackle but other lengths are also available. A fully weather sealed version is protected by an EPDM elastomeric cover, a brass keyway cover and features a stainless steel shackle.

**For FREE Information
Circle 388 on Rapid Reply**

Expandable Key Ring By ESP

ESP Lock Products' EZ Key Ring can be attached to a consumer's existing key ring, enabling them to add or remove spare keys and accessories easily. Made of



tough Delrin plastic, the patented, multicolored Uni-Lock system unlocks with a simple squeeze, thus avoiding broken or chipped fingernails from attempts to open traditional split key rings. A high-volume impulse purchase item, the EZ Key Ring is available with unique point-of-purchase displays. The 144-unit container takes little counter space, making it ideal for add-on sales in the shop.

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Federal Lock Company's Changeable Shackles

Federal Lock Company has improved the shackle design on all their re-keyable padlocks, making them more retailer-friendly. The improved design makes the shackle

changeable, without having to remove the cylinder and integral parts, thereby limiting the amount of inventory of locksmith needs to service added shackle lengths. An allen-head screw on the lock body, when removed from an unlocked padlock, allows a locksmith to quickly replace a 1" shackle with a 2" or 3" shackle to suit the customer's needs. This eliminates the need to stock padlocks with multiple shackle lengths.

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Secure Industries' Extra Long Shackle

Once again Secure Industries delivers on demand. Locksmiths saw a demand for the extra long shackle to secure those hard to reach places. Secure responded quickly by adding to its padlock line a 2" solid brass body Em-D Kay brand Padlock with a 4" high shackle and a 1-1/8" wide clearance. Now nothing is difficult to lock up with this latest addition to the already extensive variety of Solid brass padlocks from Secure. Of course you also have the option of keyed alike or different. It's that same quality that you've always looked for and expected from Secure Industries.

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GENERAL SECURITY

Test Article #100

Surface Door Closers, Part 1- Applications

by Lynn Eisenhauer

Locksmiths are often confronted with the need to furnish and install surface closers for individual openings. Cost, appearance, and even brand preference will be considerations in the selection process, but this article will address different closer applications from the perspective of selecting a closer that meets the exact door control requirements of the opening. It will give a general overview of the different surface closer applications, providing information on the strengths and weaknesses of each one. The article will also talk about some of the accessories or options that should be taken into consideration when choosing the most appropriate closer for a given opening. Future articles will detail the actual step-by-step installation procedures to be followed for each application.

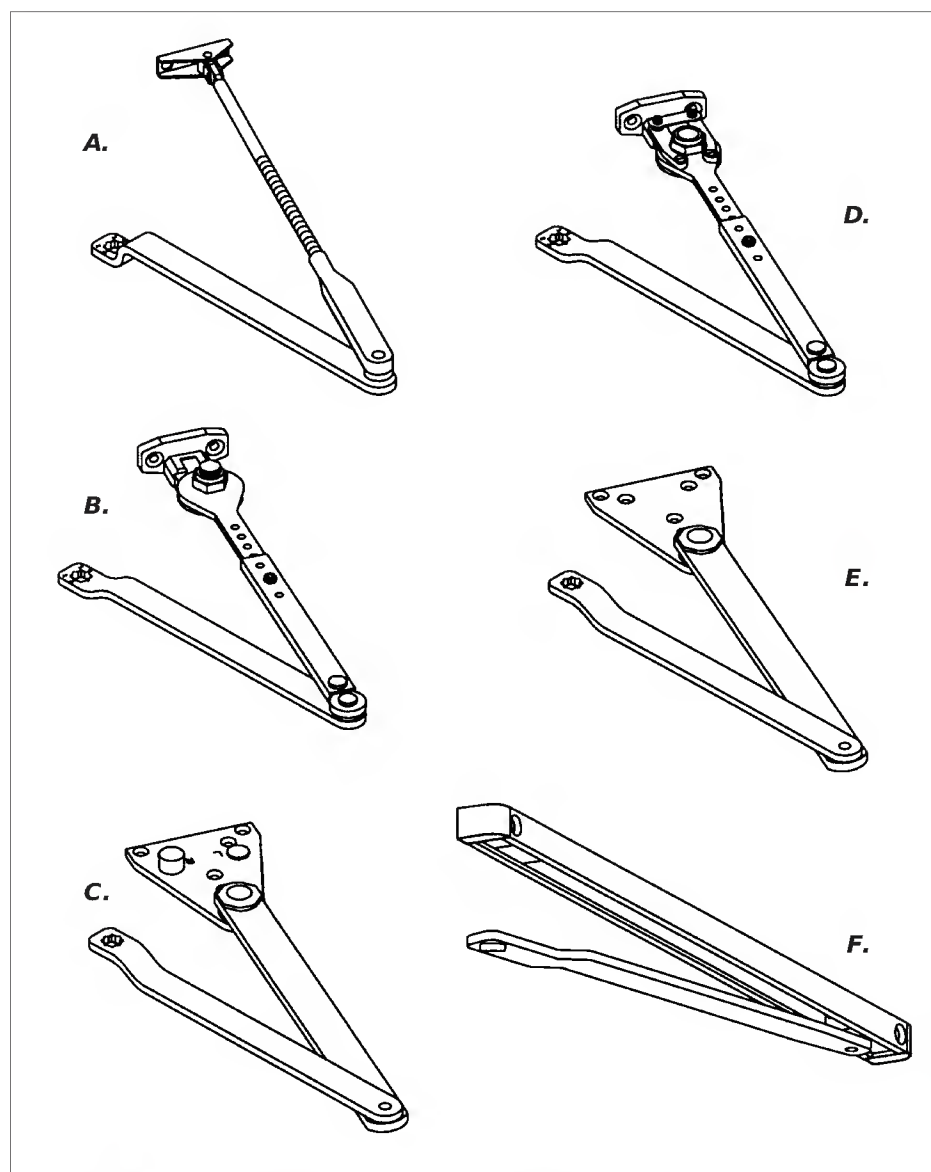
Choosing the best application begins with a thorough survey of the opening. Is it an interior or exterior door? Will the closer be mounted on the push side or the pull side? Are there physical constraints that dictate a specific closer application? What size closer is needed for optimal door control? How will the opening be used? Is it a fire door? Are the pedestrians who will use it elderly or physically challenged? Is the environment one in which vandalism is likely? What special features are required to accommodate the need for barrier-free accessibility or minimize the potential for damage? Once these questions have been answered, the selection process can begin. Closer arms are a significant variable to take into consideration when selecting the best closer application.

Proper arm selection can further the goal of vandal resistance, or provide additional flexibility in door function. A variety of heavy-duty and heavy-duty dead stop arms are available for high use and abuse-prone applications. The dead stop feature

will help protect surrounding walls from damage. The heavy-duty versions typically feature strengthened, thicker gauge material for extra resistance to vandalism.

designed specifically for high abuse/high security environments.

While these arm options are designed to offer optimum resistance



1. An important consideration in closer application is the choice of arms. These can include: (A) Non-hold open, (B) Hold open, (C) Heavy duty with dead stop, (D) Fusible link, (E) Heavy duty, and (F) Track.

Many manufacturers also offer high security versions of their closers which incorporate heavy duty arms, security fasteners and other features

to vandalism and breakage, it may be at times advisable to use them in connection with other means of snubbing or a separate limiting dead

stop. For example, circumstances may dictate use of a heavy-duty arm on an outswinging exterior door or where an interior door swings against an adjacent wall. These applications may call for furnishing a closer with hydraulic backcheck. Hydraulic backcheck is *not* a limiting dead stop! It provides a variable cushioning action that reduces the momentum of the door in the opening cycle and therefore reduces the likelihood of damage from an uncontrolled or overly forceful opening. The backcheck feature is variable, and is typically set at the time of installation to meet the needs of the particular opening.

For additional flexibility, hold-open arms which hold the closer in a stationary position are available. They are sometimes offered with a selectable on/off option. Hold-open arms are not self-releasing and cannot be used on labeled fire doors which require fire/life safety products, including a variety of closer/holder release devices. The discussion of these products is beyond the scope of this article. It is worth noting, though, that a variation on this feature, the

fusible-link hold open arm, is sometimes used in applications where property preservation rather than life safety, is an issue. This arm has a soldered link which will melt and release in the event of fire. Fusible link arms are generally considered to be outdated in comparison to more advanced life/safety products and are not typically recommended. (See *illustration 1.*)

Another basic selection issue is closer size. Briefly, closers are sized according to their spring strength. A very basic closer model may have a non-adjustable spring in a single size—two, three, four, five or six. Others will have springs with varying degrees of adjustability. The actual range may vary from manufacturer to manufacturer. Adjustable springs permit the installer greater flexibility in adjusting the closer to the actual field conditions encountered with the opening.

The manufacturer's size selector chart should always be referenced to determine the recommended closer size. Unusually tall, wide, or heavy doors, for example, require closers

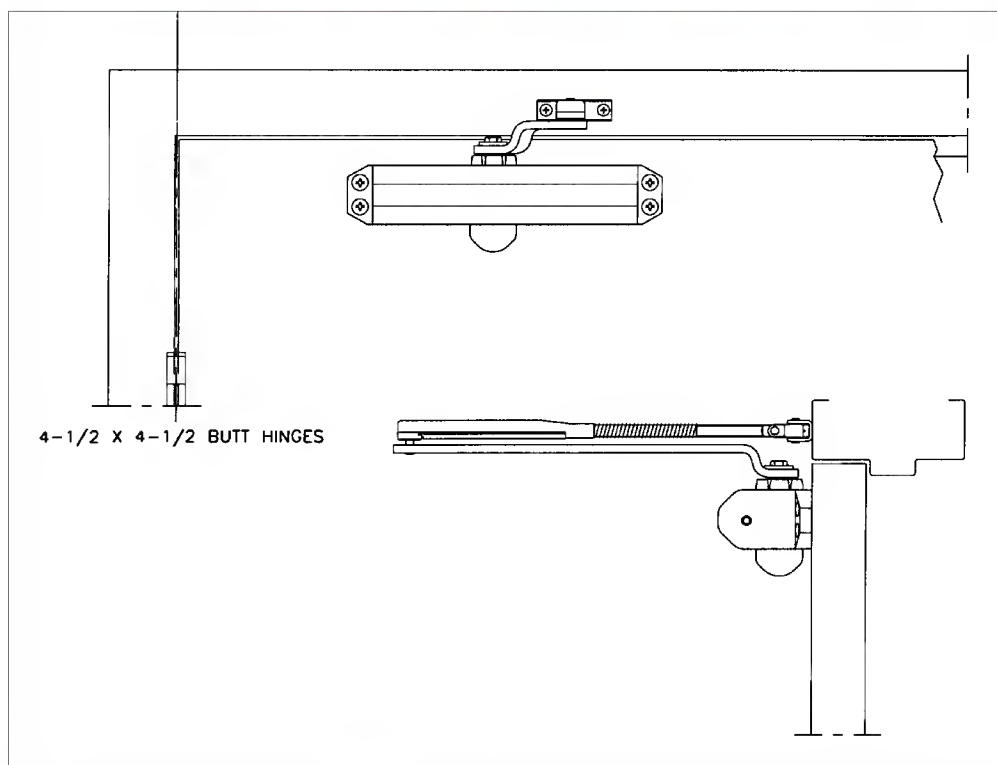
with greater closing force to assure proper operation. By following manufacturers' charts, it is a fairly simple matter to determine the proper size closer for the opening. The actual field application will have a direct effect on proper closer spring size. Application types have a direct correlation to closer efficiency (its ability to translate opening force into closing force). To compensate for applications which result in lower efficiency, a stronger closer size may be required.

Closer spring size can also be affected by accessibility requirements. With the passage of the Americans With Disabilities Act, requirements for barrier-free openings have become the law of the land. Closers with adjustable spring power are available that satisfy these requirements. These closers minimize the force required to open the door. However, it is sometimes difficult to assure good door closing control while meeting barrier-free codes, as reduced opening force also means reduced closing force. In certain circumstances, severe wind draft or heating/air conditioning pressures



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2. The most widely recommended installation is the standard or regular arm mount. In this application, the closer is attached to the flush or pull side of the door and the arm attached to the top jamb.

may dictate an alternate choice like low-energy operators which can provide auxiliary opening force on demand.

Delayed action is another option which provides increased door control flexibility. This option delays the closing cycle to allow additional time for access through the opening. The longer closing cycle time is a particular advantage for people in wheel chairs, or on crutches, walkers, etc.

Like the backcheck feature, delayed action is an adjustable feature that is normally set at the time of installation to meet the needs of the users.

Standard Arm Applications

There are four basic applications to consider when selecting a surface closer. These include standard or regular arm, top jamb, parallel arm, and track applications/ mounts.

The standard or regular application is generally regarded as the most desirable installation type, as the physical linkages make it the most efficient. (See illustration 2.) These linkages ensure that the

closer will return greater closing force in comparison to the opening force. In regular arm applications, the closer is installed on the pull-side face of the door, and the foot is attached to the pull-side face of the frame. To permit the application, the door and frame must be flush, or at maximum a 1/8"

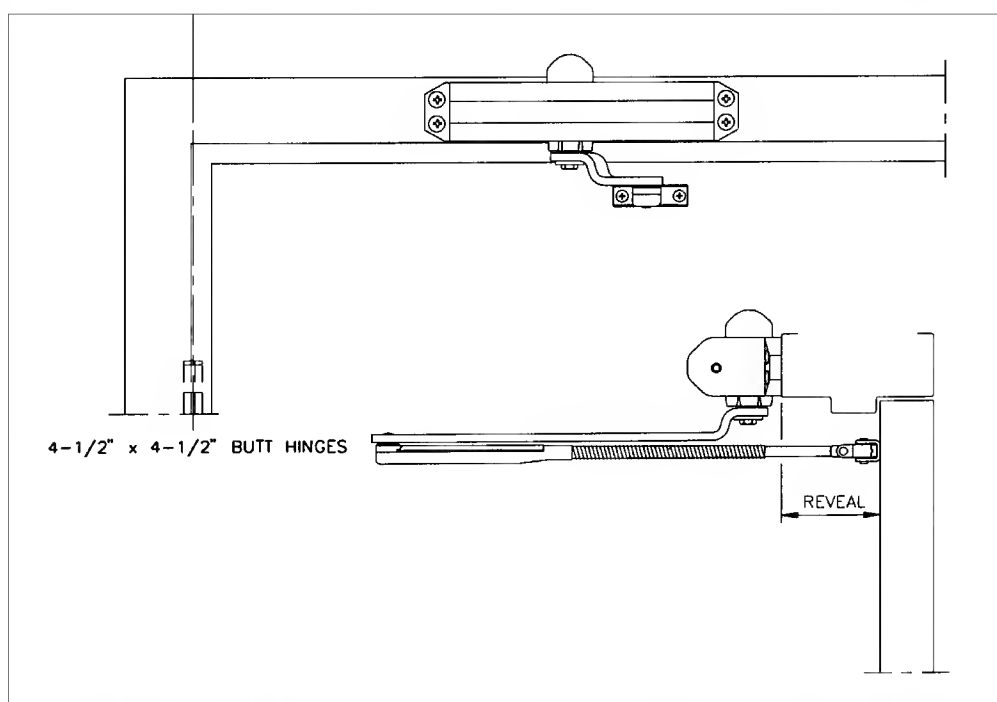
door inset. Double egress frames, or other applications having a greater reveal on the pull side, will require special arms or the selection of another closer application.

Regular arm installations are generally a good choice for doors swinging into offices from the corridor or inswinging exterior doors. They are a poor choice for outswinging exterior doors where the closer would be exposed to the elements.

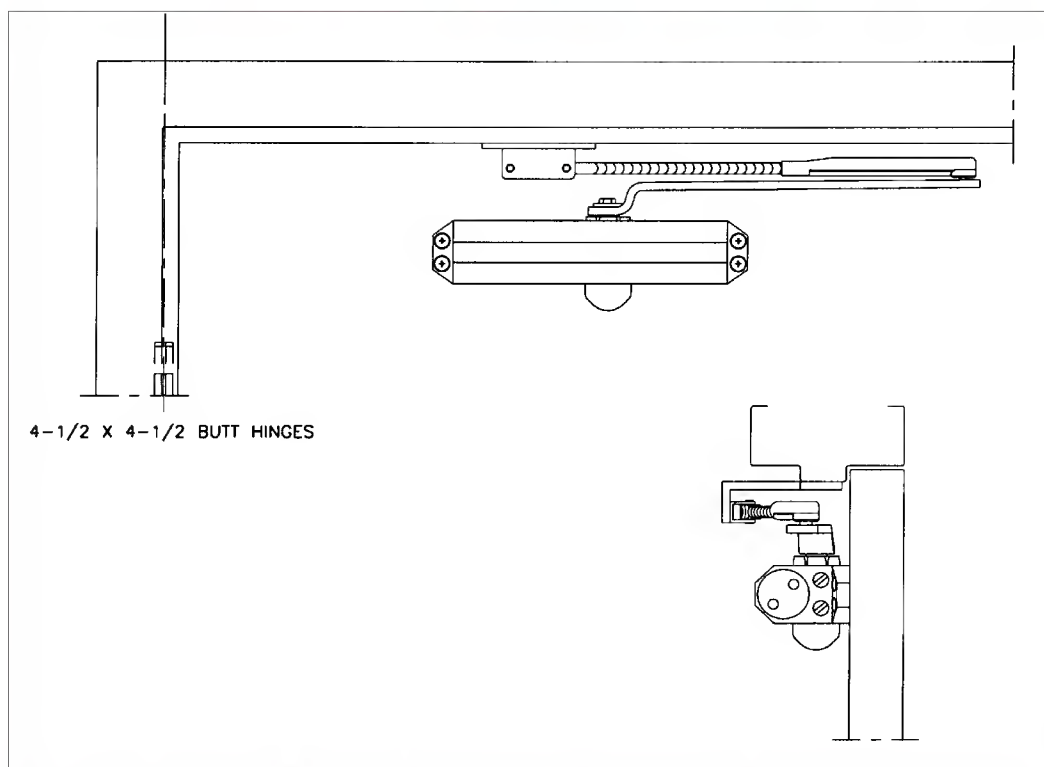
One downfall of the regular arm application is that the arm projects out from the face of the door. This can make it a poor choice on aesthetic grounds in installations where the arm would project out into a corridor. Closer projection may be another constraint in settings where there is a potential problem with the closer swinging open against an adjacent wall. Regular arm installations may also be a poor choice in installations where the projecting arm is an inviting target for vandalism or tampering.

Top Jamb Applications

Top jamb mount is very similar to the regular arm mount, but the closer is turned upside down on the opposite side of the door. (See illustration 3.)



3. On the top jamb mount, the closer is installed on the push side of the door and attached to the top jamb. The closer arm is attached to the door.



4. Less vandalism prone than the standard or top mount, the parallel arm mount places the closer on the push side of the door and the arm attached to a soffit bracket attached to the jamb.

In this push-side application, the closer is installed on the face of the frame and the closer arm is installed on the face of the door. From the standpoint of efficiency, this application is nearly as good as a regular arm mount, though a condition known as reveal must be taken into consideration.

Reveal is the distance from the face of the door to the face of the frame. Top jamb installations may involve reveal conditions that require the use of a longer arm to compensate for this added distance. This will in turn slightly alter the efficiency of the closer, making it slightly less desirable than regular arm applications. For a proper top jamb mount, it is of the utmost importance to plan for reveal conditions, and where required, to order the correct length arm to compensate for them.

Top jamb installations are extremely well suited to outswinging exterior doors, as the closer is placed on the interior side of the opening and protected from exposure to the elements. It would be a

poor choice for inswinging exterior doors or in applications where inswinging doors open into offices from a corridor. In this situation, the exposed arms are visible down the length of the corridor.

The top jamb mount, like the regular arm mount, is subject to

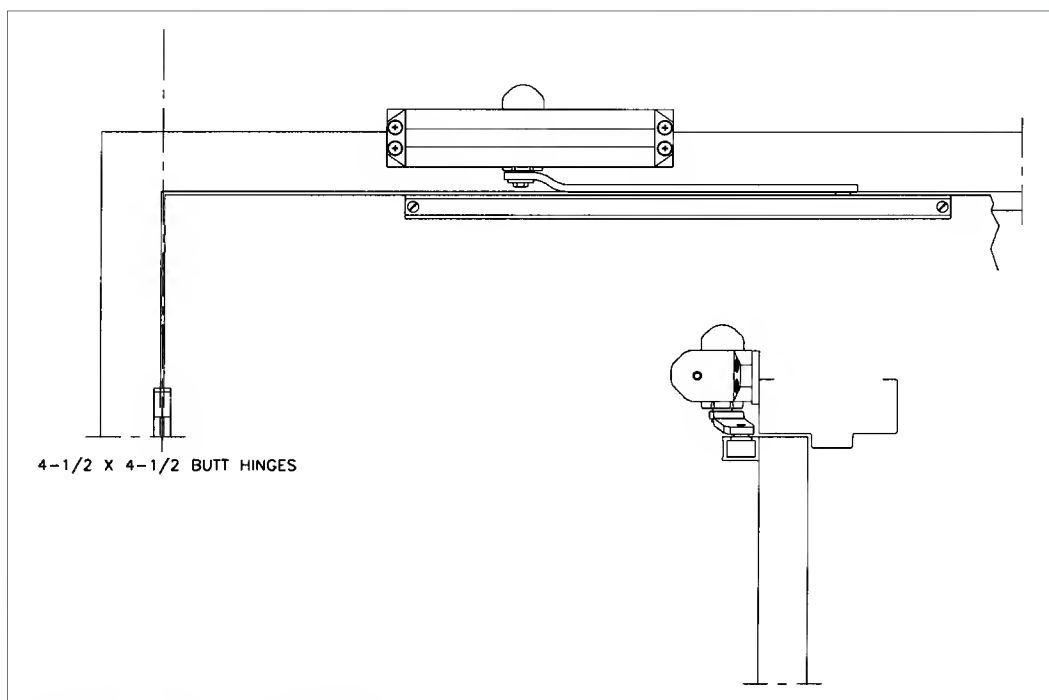
vandalism, as the closer arm projects out and makes an inviting target.

Parallel Arm Installations

Parallel arm applications do not involve the projecting arm condition found in regular arm and top jamb mounts. (See illustration 4.) As a result, they are often the application of choice in vandalism-prone situations. In this application, the closer is attached to the push-side face of the door, and the arm is attached to the soffit bracket fastened to the stop of the frame. This configuration places the arm of the closer parallel to the face of door.

Parallel arm applications do have some drawbacks. Mechanically, a parallel arm installation is not as efficient as regular or top jamb applications. As a consequence, it typically requires use of a closer that is one size larger than would be required for the opening if a regular or top jamb mount were used.

A parallel arm mount also may require preload of the pinion during the installation process, due to the less desirable mechanics of the arm position. Preloading may be required to keep tension on the door in the



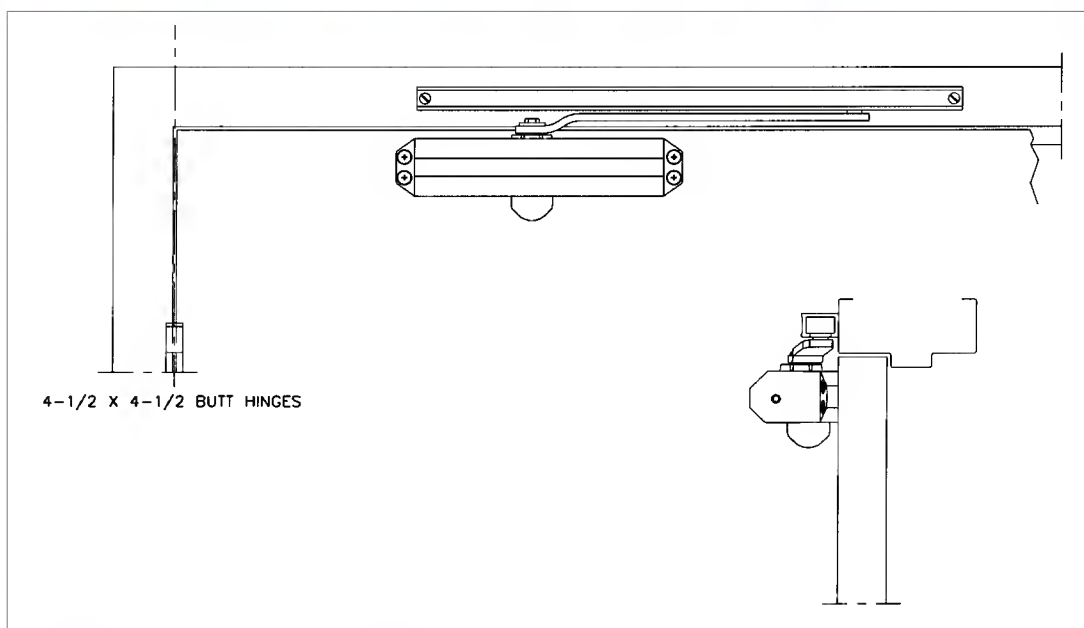
5. The Track or "T" application.

closed position, and assure other correct operational characteristics. Preloading is often overlooked during the installation process, resulting in many parallel arm installations that do not operate properly. When installing a parallel arm mount closer, it is important to reference the specific details for the product used, as they may vary from manufacturer to manufacturer.

Despite their obvious advantage in eliminating the projecting arm condition, parallel arm applications can be problematic where closers are being installed on doors with glass lites. The top door rail dimension must be sufficient, or closer and glass may conflict. Correcting the problem may require the use of a parallel arm drop plate.

Track Installations

Track applications feature a single lever arm with a slide track channel,



6. The "J T" or Jamb Track application.

also eliminating the projecting arm. These applications are popular in schools, subways, rest stops and other public access areas prone to tampering and vandalism. Slide track arm applications are also less efficient as a result of the use of an arm with one lever versus an arm with two levers. They typically require that the

closer size be increased two sizes in comparison to regular or top jamb applications.

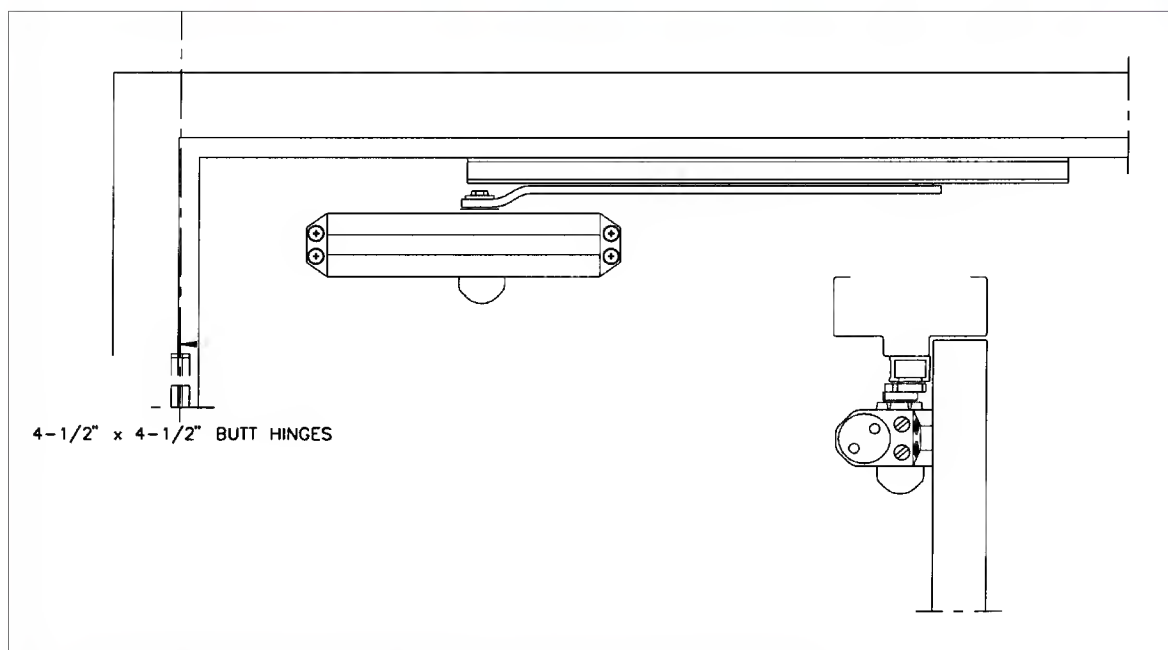
Track arm closers are found in four different varieties. The most common track arm installation is the *Track (T)* application, in which the closer is

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and the track is mounted on the frame. Consideration should be given to possible problems with the projection of the closer in conflict with adjacent walls.

Parallel Track (PT) installations are used on the push side of the opening, where the closer is fastened to the door face and the track is attached to the stop of the frame. This is typically not the application of choice, as it offers the combined

7. Generally not preferred is the "PT" or Parallel Track installation.

mounted on the frame. (See illustration 5.) The track is mounted to the door on the pull side of the opening where the door and frame are flush, or there is a maximum of 1/8" inset. The distance between the track and the adjacent wall is not normally a

concern, due to the narrow projection of the track.

The *Jamb Track (JT)* mount is the reverse of the Track mount. (See illustration 6.) In this application, the closer is mounted on the face of door

disadvantages of parallel arm and track installations described previously. (See illustration 7.)

Flush Transom Track (FT) applications are also available for flush

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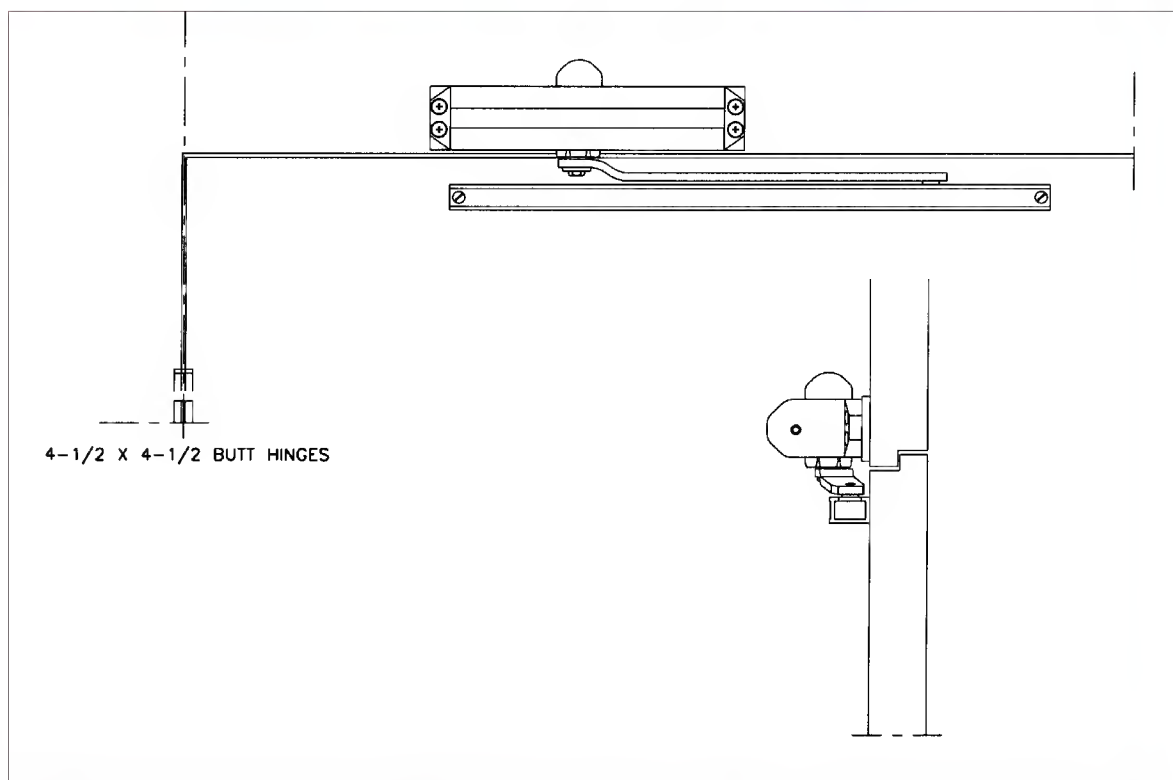
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transom conditions. This application is rarely used as flush transom conditions are not typical, but may occasionally be encountered. (See illustration 8.)

In Summary

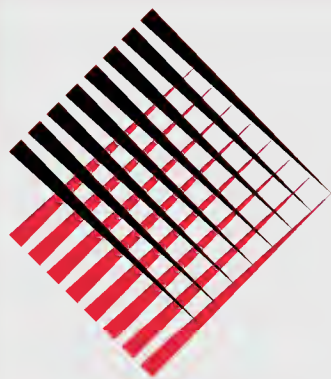
Closers are available with a variety of covers, and plated or color finishes, but the aesthetic beauty will be long forgotten if the closer performs poorly. The functional aspects should always be given top priority in the closer selection process. By taking the time to understand and address the requirements of the opening—choosing the correct application, the correct accessories, options and sizing—the locksmith can assure good closer life/ service and a satisfied customer.



8. The "FT" or Flush Transom application is for rare instances of a flush transom. This is often encountered on sets of double wood doors.

The author is Marketing Communications Manager for the DORMA Group. If you have questions

regarding door closers, contact an authorized DORMA distributor. **TRIL**



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AUTOMOTIVE SECURITY

Test Article #101

1994-1995 Honda Accord, Part 2

by Michael Hyde



1. The glove box is easily serviced after removing the two Phillips head screws that hold it in the door.

Last month we covered the ignition, door and trunk lock service on the 1994 and '95 Accord. This month we finish with the accessory lock service.

The glove box lock on this vehicle is an easy lock to service. The lock is removed by unscrewing the two Phillips head screws that hold it in the door. (See photograph 1.)

The key code is stamped on all the locks except the ignition. Photograph two shows the glove box lock with the

code stamped on it. As can be seen, more than one number is present. This is typical. Often the code is incorporated into a longer number. In any case, the last four numbers is the correct code. In some instances, the plastic trim piece may cover the last digit of the code. Make sure you see all the code.

To remove the cylinder plug from the glove box lock it is necessary to snap off the colored plastic trim

around the front section of the cylinder plug. Next remove the "C" clip on the back of the plug. Next remove the linkage retainer, these retainers can be somewhat difficult to

remove. Use a small flat blade screwdriver to gently wedge the retainer up over the post. (See photograph 3.)

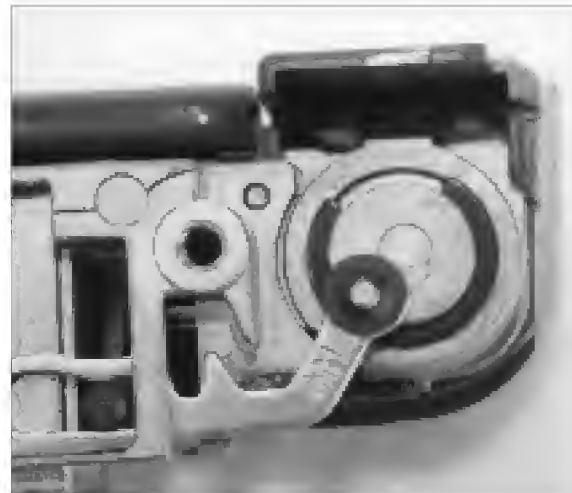
The glove box cylinder plug contains five tumblers in positions 1 through 5, there are six depths. (See

photograph 4.)

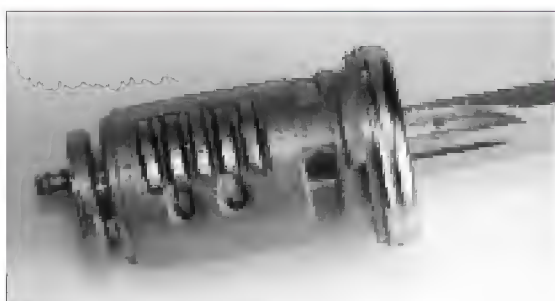
The rear seatback lock controls whether or not the rear seats can be folded forward. The main purpose of this lock is to not allow access to the trunk from the passenger compartment without having to use the master key. To service this lock, first remove the trim piece that encircles the lock. (See photograph 5.)



2. The code number is plainly stamped on the lock's body. In most cases this is the easiest lock from which to retrieve a key code.



3. The snap ring and the small clip holding the pawl on must gently be removed.



4. The glove box lock plug.

From inside the trunk compartment we can see the underside section of the lock assembly. Remove the cover, it is held in place by a Phillips head screw. Disconnect the linkage rod attached to the lock. (See photograph 6.)

Next, lift up on the rear deck liner and remove the two 10mm bolts that secure the lock in place. (See photograph 7.)

Before servicing this lock it must be removed from the steel support frame that it is placed in. To do so, wedge a screw driver between the pawl and the rear section of the lock, the lock will slide out the front section of the

steel frame. (See photograph 8.)

To disassemble the cylinder gently wedge off the face cap, it must be re-used. Next remove the "C" clip on the back of the cylinder plug. The cylinder plug will now slide out the front of the housing. The lock contains seven tumblers

in positions 1 through 7. There are six depths. (See photograph 9.)

The last lock of this article is the lock-out cylinder for the trunk lid and gas door release. This lock controls the ability to release the locking mechanism of the trunk lid and gas cap cover. To service the lock, it is necessary to lift up the little trim piece door on the plastic cover and remove

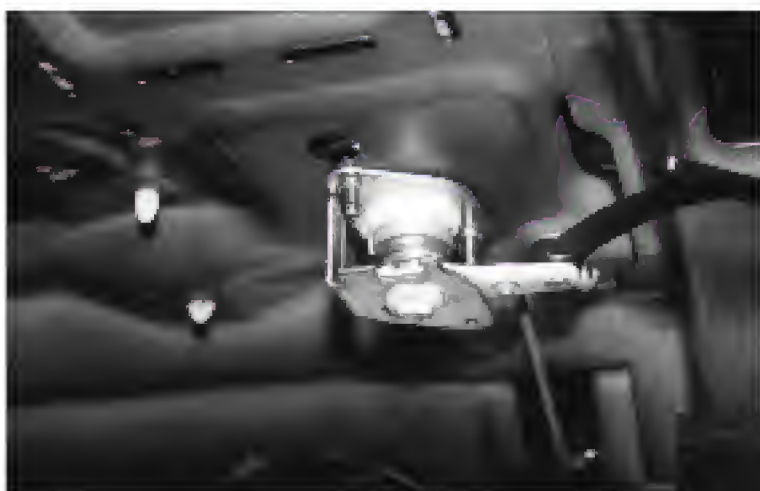


5. The seatback lock controls the folding down of the rear seat. To remove, begin by lifting out the plastic trim ring that surrounds the lock.

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6. From inside the trunk, remove the seatback lock cover and disconnect the linkage.

the single Phillips head screw. The plastic cover will now slide off with a little back and forth motion. (See photograph 10.)

This lock, too, is held in a steel frame and is removed by gently prying it out of its plastic seat. Once removed the lock can be serviced.

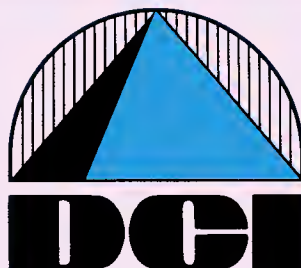
To disassemble the lock, the face cap must be removed, to do this it may

result in damaging the cap. Although there is no exact replacement cap available, I use Auto Security Product's P-30-217 as a replacement cap. Remember only a small section of the cap is actually seen through the plastic trim cover.

Next remove the "C" clip on the back of the cylinder plug, remember to mark the tailpiece to index the way it came off, since it can be re-installed 180 degrees off. The cylinder will now



7. Next, lift the rear deck liner and remove the two 10mm bolts that hold the lock in place.



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8. To remove the seatback lock from the steel frame, gently wedge a screw driver between the back of the lock and the pawl.

slide out the front of the housing. The lock contains seven tumblers in positions 1 through 7. There are six depths. (See photograph 11.)

Key Generation

Making a first key to this car is easy, although it may be helpful to get a magnifier to read the code as they stamp it so small.

Method 1) Remove the glove box lock and read the code stamped on it.



The code will be the bottom or last set of digits. All code numbers range from 5000 through 8442.

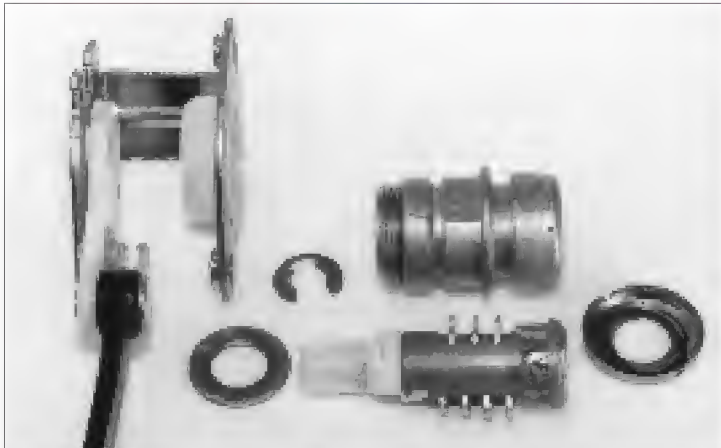
Method 2) Remove trunk lid release lock near driver's seat and

read code stamped on lock to make key. The code will be the bottom set of digits, all numbers in the range of 5000 through 8442. If code is not stamped correctly then disassemble this lock or the trunk lock for

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9. The disassembled seatback lock.



10. Lift the small cover to expose a Phillips head screw. Remove the screw and the cover can be removed, giving access to the trunk/gas cap lock.



11. The disassembled trunk/gas cap lock.

positions one through seven.

Then progression the last remaining cut, in position eight, in the ignition lock for a working master key.

Specifications

Key Blank: ILCO X182,
X193, HD91, HD96,
SILCA HON45R,
HON51R

Code Series: 5001-8442

HPC 1200CM # CF74

HPC PUNCH PF74

M.A.C.S. 5

Center of first cut: .108

Cut to Cut: .0845

Depths: 1=.307, 2=.294, 3=.282,
4=.269, 5=.257, 6=.244

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ELECTRONIC SECURITY

Test Article #102

All The Pieces: Wireless System Components

by Joseph Moses, Ph.D.

Wireless security systems are designed to detect conditions that indicate intrusion, fire, medical emergency, or environmental hazards and report those conditions electronically—without the use of wires between sensors and the system control panel. Sensors detect opened doors or windows, broken glass, smoke, or frozen pipes and communicate those conditions via battery-powered radio signals transmitted to the control panel. The

processing unit (CPU). The control panel receives signals from sensor transmitters via radio waves and from users of the system via control panel buttons. Signals received by the control panel set the arming level of the system, indicate alarm conditions, and report the status of system components.

The example in photograph one is a Commander 2000 control panel. The user sets the arming level of the system by first entering a private code. The code allows access to the

persons normally in the house are away—all interior and exterior sensors are on. "NO DELAY" refers to the readiness of doors to go into alarm immediately if opened. When "NO DELAY" is turned off, doors will allow the user a delay time—during entry and exit—for disarming the system before an alarm can sound.

Panic buttons (the double buttons on the right of the panel) allow quick and easy activation of an alarm. Buttons specify police, fire, or auxiliary (medical) alarms. No matter what arming level is selected, the panic buttons notify the central monitoring station of the need for help when pressed.

Selecting the chime mode on the panel lets users know when someone has entered or left the premises. No alarm is sounded; the user is simply notified of a door being used.

Using the command button on the panel is a quick way of increasing the arming level of the system. Instead of entering a four-digit code and then pressing the button for the desired arming level, the user can press Command plus 3, for example. As a security measure, the command button cannot be used to turn the system off or to reduce the level of protection. The Bypass button allows selected sensors to be bypassed, so that an individual window could be opened on a hot night without setting off an alarm.

The STATUS button allows users to check on the operation of the system. If a sensor has a low battery or if a sensor cover is off or a window is open, the system will inform the user of the situation. An optional LIGHTS feature provides control of certain house lights from the control panel.

Other buttons allow the testing of the phone lines or of sensors. Testing phone lines is important because the security system is connected to the central monitoring station via the



1. Controlling mode or function and reporting system status, the control panel or CPU is the heart of an alarm system. Some units, such as this Commander 2000, incorporate the CPU and arming keypad into one unit. Other systems offer a CPU operated by separate wireless keypads.

control panel in turn communicates with a central monitoring station from which an operator dispatches the proper authorities to the scene. Designing and installing a wireless security system is a matter of assessing security needs, selecting the equipment to meet those needs, and designing a system that suits the equipment, end users, and the space to be protected.

The Control Panel

The center of the security system is the control panel, also called a central

system and prevents unauthorized persons or very young children from operating the system. Indicator lights notify the user of system status. Numbered buttons on the control panel arm the system for different situations.

In the "STAY" mode, for example, people can move about inside the protected area without setting off alarms. The perimeter doors and windows are armed, but interior sensors that would be activated by movement or heat do not respond. When in the "AWAY" mode—meaning

phone. Sensor testing allows checking on the operation of sensors without the risk of accidentally sending an alarm signal to the monitoring station.

In addition to receiving signals from sensors, interactive systems such as the Commander 2000 can also be programmed using two-way communication between the control panel and the central station receiver via phone lines. Interactive systems allow certain programming and troubleshooting functions to be done remotely. The advantages of interactive technology include the ability to set access codes, add or delete sensors numbers, and perform several other functions without a technician having to go to the site.

Sensors and Transmitters

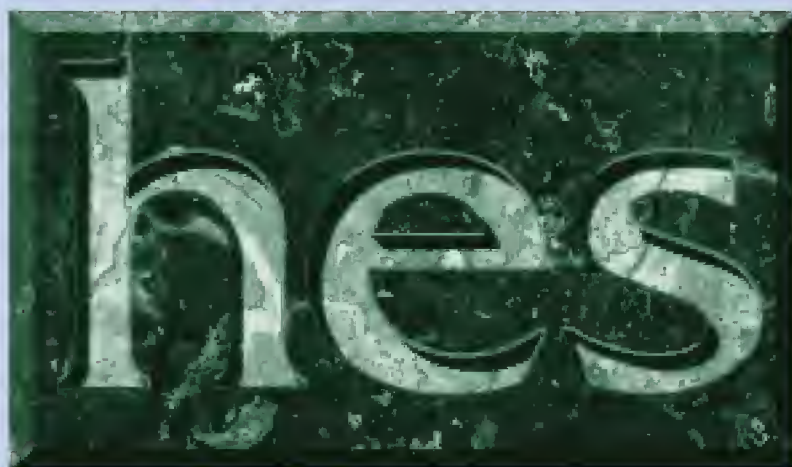
Sensors consist of devices for detecting changes in environmental conditions and a transmitter for communicating



2. Comprised of a small magnet and a larger reed switch/transmitter, the door/window contact is an integral part of the alarm system.

those changes to the control panel. The electronic design of wireless communication employs radio waves as carriers of messages. Those digital messages are generated by the battery-powered transmitters and "heard" by the control panel—the system's receiver.

The most sophisticated T system transmitters generate signals that carry unique codes, which indicate the working status and the location of sensors on the premises. Codes also prevent false alarms caused by signals transmitted from non-security system sources. Since the receiver can only hear certain codes, false alarms cannot be caused by radio signals from sources such as TV remote control devices, garage door openers, or airplanes passing overhead. Sensor identification codes are



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programmed into the sensors by technicians or by the manufacturer. The most common types of sensors are listed below:

Door/Window Sensors detect the opening and closing of doors and windows. (See photograph 2.) They can also be used on drawers, display cases and cabinets. A magnet and reed switch mechanism detects



3. The versatility and range of protection options makes the PIR very effective as an interior sensor.

openings or closings. In supervised systems, the signal indicates to the control panel and the central station which sensor has been activated. With supervision police would know, for example, if an intruder entered the upstairs bathroom window, then went into the master bedroom and opened a protected cabinet.

In a multiple-unit application such as a school with several remote classrooms, an alarm would indicate precisely which classroom has been



4. Wireless pendants are widely used for medical alert systems.

broken into. (In one case we know of a vandal was found hiding in a classroom, unaware that the alarm had pinpointed his location.) Supervised sensors also automatically perform communication testing and sensor battery monitoring so the user is notified of a low battery or a noncommunicating sensor.

Passive Infrared (PIR) Motion

Sensors work by detecting body heat and are typically used for interior protection. Because the PIR can be adjusted to work in broad or narrow spaces, covering large spacious rooms, or forming a thin "curtain," it is an extremely effective sensor. PIRs can be aimed and masked to

prevent false alarms caused by pets. (See photograph 3.)

Sound Sensors "hear" specific frequencies, such as those made by breaking glass or splintering wood when an intruder uses force to gain entry.

Shock Sensors mount on window frames and work as Door/Window sensors. But if an intruder should break the window instead of prying the window frame open, the shock sensor detects the shattering of glass.

Smoke Sensors detect smoke and then sound an alarm. In supervised systems, the transmitter in the sensor sends a fire alarm to the control panel and indicates the location of the sensor that detected the smoke.

Rate-of-Rise Sensors detect sharp increases in temperature. They are used where smoke may occur naturally, causing false smoke alarms, such as kitchens, furnace rooms, or garages.

Wireless hand-held panic buttons and panic pendants allow the user to summon help without having to get to a phone. The wireless transmitter signals the need for help, and the control panel contacts the central



5. Freeze sensors protect homes and property when nobody is present.

station. (See photograph 4.)

Freeze Sensors detect furnace failure before damage can occur. (See photograph 5.) They have a built-in thermostat that activates an alarm when the temperature drops below a certain level, notifying the end-user of

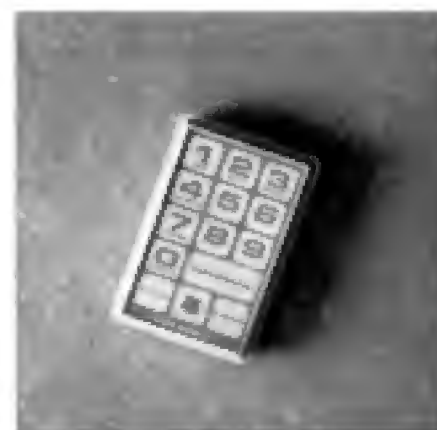


6. Wireless sirens and alarms can create a deterring force without a hard installation.

the need for furnace repair before pipes have time to freeze.

Sirens and Lamp Modules

Two of the most deterring elements of an alarm system are lights



7. Wireless touchpads offer personal security within hands reach, at all times.



8. Keeping an eye on your home when you and your neighbors can't. Central station operators are ready to respond to an emergency.

and sound. Wireless sirens used to frighten intruders and notify others of an alarm can be plugged into a wall

outlet. This not only keeps them well hidden, it also makes for an extremely easy install. Lamps, too, are easy to install as the modules allow the security system to turn specified lights on and off. (See photograph 6.)

Wireless Touchpads

For convenience, wireless touchpads allow the user to control the system without having to go to the control panel. Most operations can be done with a wireless touchpad. As a security feature, these units can be carried while working in the yard or set at the bed side during the evening. (See photograph 7.)

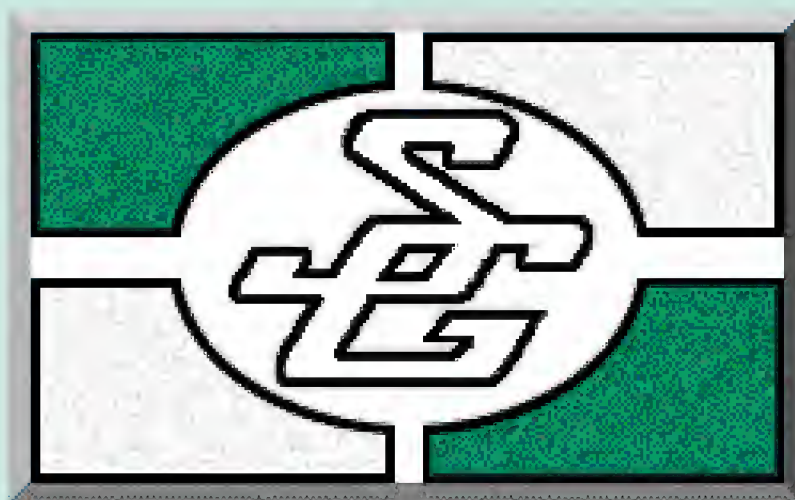
The Central Monitoring Receiver

Of course, all the noise and lights in the world won't help if nobody is around to respond. Monitoring services are used to monitor your home's security status 24 hours a day, 365 days a year. During an emergency, a central station operator is prepared to respond, calling the appropriate parties for a fast response.

A central station is equipped with receivers that monitor security systems via telephone lines. A receiver such as the CS-4000 is interactive, which allows two-way communication between the control panel and the receiver. An interactive receiver is designed to allow the operator to program information into a control panel's memory using keyboard commands. (See photograph 8.)

For example, commands may instruct a control panel to dial the central station and give its account number along with alarms, trouble, or test reports. With information gathered via the interactive receiver, a technician can learn the nature and location of a problem before arriving on the site. The receiver also allows the operator to make changes in the control panel's memory so it can be customized to specific requirements.

*The author is Senior Editor at Interactive Technologies, Inc. (ITI), of North St. Paul, MN. For more information contact ITI at (800) 777-5484, fax (612) 779-4879. **ITI***



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BEGINNER'S CORNER

Educate The Public

It was 100 degrees in the afternoon, and I was on my knees, working on the sunny side of a metal storage unit, trying to open a Buffalo Discus padlock. The keyway on these padlocks is upside down with no room to turn the lock, so you either have to stand on your head or pick upside down.

The woman, who had lost her keys, was standing in the shade, watching



by
Eugene Gentry

and talking, while I tried to concentrate and keep the sweat out of my eyes.

She said, "How did you learn how to do that?"

"Went to school," I replied.

"I didn't know you had to go to school to do that."

"Yup."

"Is it hard to open locks?"

"Sometimes."

"I didn't know that."

"Do you do any thing else beside open locks?"

"Install and repair locks, duplicate and make new keys." (Plus a dozen other things.)

"I didn't know you could do all those things. Could you make another key for my Jaguar?"

"Sure, lady, as soon as I get this (*&!!@*) lock open."

This conversation, along with other comments people have made, lead me to believe that the general public does not know what a locksmith does for a living. They do not know all the services a locksmith can provide for them.

Some have an odd perception about a locksmith. When I first started, I mentioned to an acquaintance that I was going to school for locksmithing. He became visibly upset and said, "Then you will be able to get in my house any time you want." I assured him I was honest and had no interest in getting in his house.

Since then, I have not used the term, picking a lock.

If any one says, "Do you pick locks?" I tell them, "No, I make emergency openings."

A woman at a medical center had locked her keys inside her locker. A maintenance man had beat on the latch and hinges trying to get the door open and in the process had damaged the almost new locker door. She was

about to call her husband at home to bring a hacksaw. My daughter, who works there, happened to pass by and said, "Why don't you call a locksmith?"

The woman said, "I never thought of that." I was called, and had the lock off in a couple minutes.

A store owner told me this story:

A woman locked her keys and a small child in her car, then ran through the shopping center looking for a coat hanger. (A useless gesture.) Finally, she called the police, and they called the fire department. Both arrived shortly, but no one knew how to open the car, so a fireman took a hammer and smashed the window out. After all were gone, someone asked the woman why she didn't call a locksmith, there was one a block away. The woman said, "I didn't think of that."

The object of these stories is to show that the public needs to be educated about locksmith work. It does not help us to have the TV news pick on locksmiths, showing some that will open a house or car without customer identification. We need to put out some positive information, through the media or by mouth.

Many locksmiths belong to the Associated Locksmiths Of America or ALOA and/or state associations. Many locksmiths have initials after their names like CRL, CML, or CPL. These associations and initials mean something for those in the trade. They mean prestige and knowledge. But the general public has no idea what these letters mean. They are familiar with a diploma and business license, but it seems that all the customer wants to know is, are you able to do the job that he has asked you to do, at a reasonable price.

If we can all do some public relations work, maybe someday people will better understand the type of work we do.

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COVER STORY!

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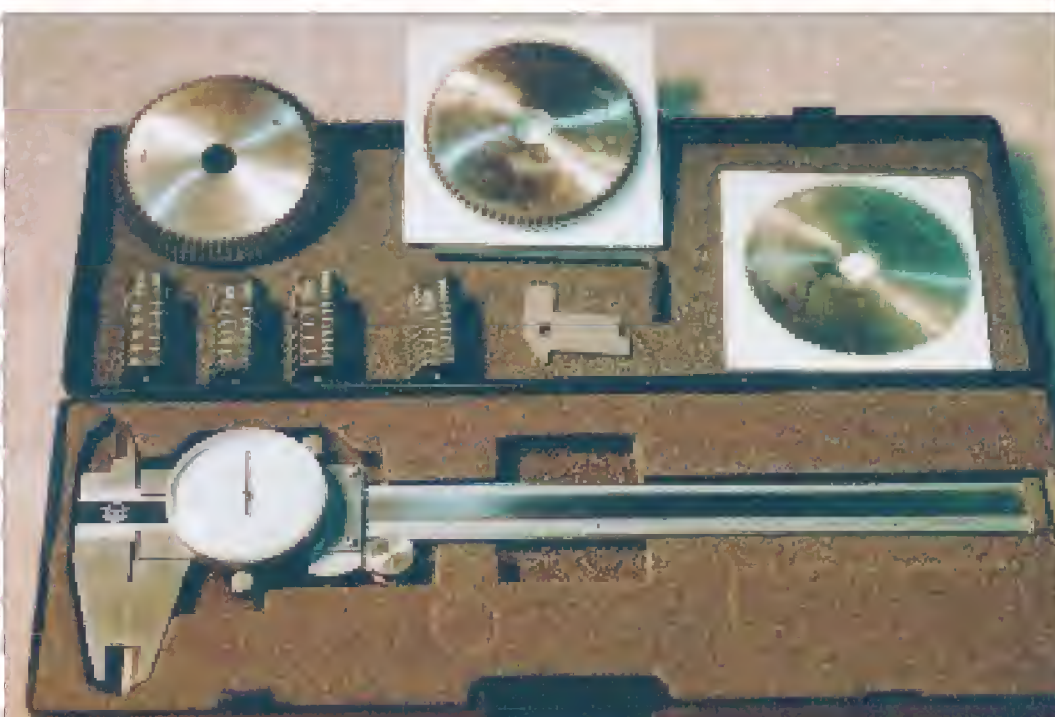
SILCA

CURTIS

ILCO

1. Framon accessories include five spacing blocks (60 spaces), end gauge, four cutters, Allen wrench and brass shim. Also included is a flat slotter.

40 • The National Locksmith



Machines!



by
Dale Libby

I was asked (ordered) to review some high quality key machines. There is no rhyme or reason to the types of machines I'm reviewing. But as locksmiths both duplicate and cut keys by code, I do cover machines from both classifications. In some cases I went to other locksmiths who use these key machines and received their input. I then cut massive amounts of keys, both duplicating and originating by code to get a feel for these machines.

What follows is my assessment and other thoughts about the ease of use and the high points of the merits of these quality units. Also, I add my own two cents worth about some of the problems that I had with using these machines and a few thoughts about possible improvements.

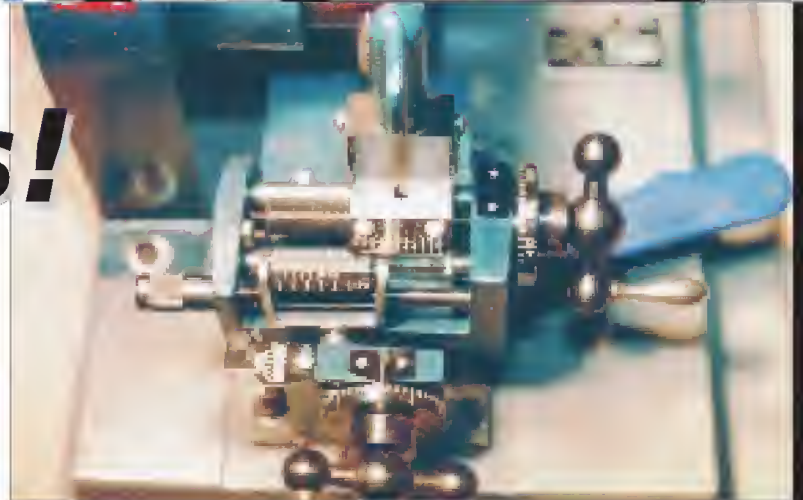
Key machines purchased by any serious locksmith should not be based on price alone. We all have different needs in the particular location that our business demands. We have to decide what we need and then decide what is really essential and necessary for our business.

My motto has been to "Buy the Best." It pays dividends in the long run.

Framon #2 Code Machine

The first key machine is the Framon Code Machine, FRA-2. This is more than a key machine. It is a key origination system. When you purchase this key machine you are able to originate 90 percent or more of all cylinder, auto, flat steel keys, and high security keys. Yes, this includes Medeco, Emhart, and other paracentric keys. Everything you need comes in the box with the key machine. Let us look, now, at some of the supplementary items that come with the machine, and then the machine itself.

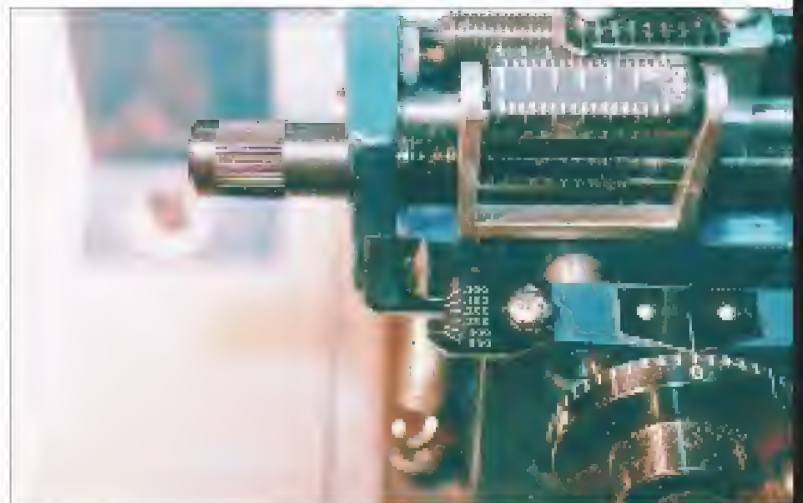
The backbone of the Framon System is the Code Machine book. It contains directions for using the key machine including all adjustments for depth and space, and has over 2000 code listings.



2. Picture of Framon machine. Shown are both micrometer knobs, spacing and depth, and the lever.

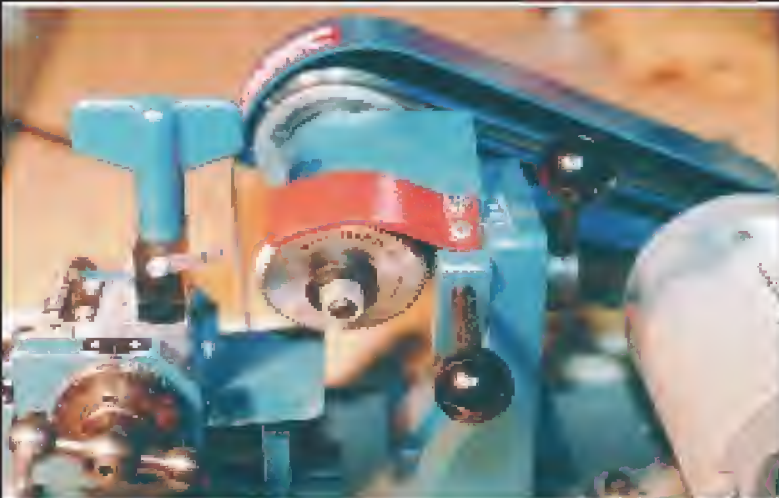


3. Close up of the spacing knob and the spacing block. Red from the left, the arrow is pointing to the fourth space.



4. Close up of space adjusting knob, depth handle and depth plate.

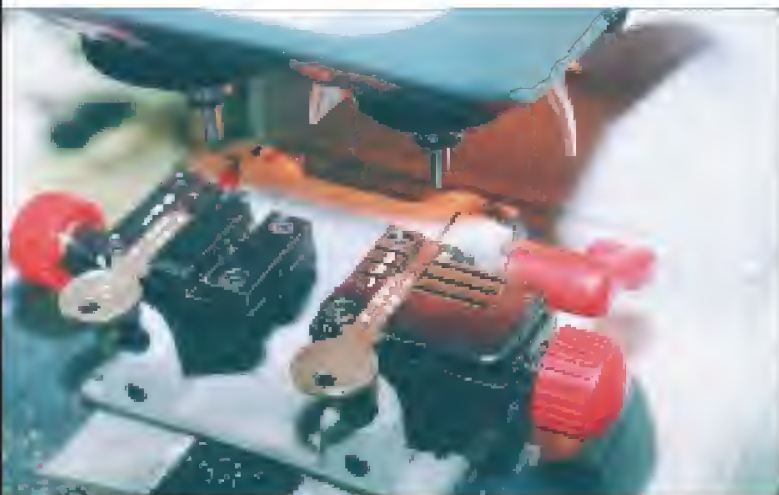
*When it comes to machines,
Dale says, "Buy the best!"*



5. Cutter set to cut Medeco Left (L) cuts. A special cutter is included to cut Medeco keys.



6. Matrix depth key adjusting lights with center green arrow. Upper left shows tracing point functions of direct and spring loaded positions.



7. Dimple keys cut on the Matrix.

A diagram of the key machine and all its parts are shown with labels to the specific parts. The key cutting information includes all that is necessary to cut a key by code: Manufacturer; Series of key that uses these settings; Model and Blanks used; The starting position for the first cut; The spacing, the spacing block to use and the drop increment; The actual cuts and depths in thousandths of an inch; and, Reed Code Book Information.

This information is quite useful even if you do not have the Framon FRA-2 key machine. This information can be used on other code machines as well.

Additional accessories can be seen in photograph one. These include spacing blocks, Medeco cutters, flat steel cutters, a tip stop clip, an Allen wrench (for adjustment of the machine) and a machinist dial caliper for reading depth of cut keys accurately. The caliper is also used in adjusting the key machine if ever necessary.

One of the great ancillary items not shown is a video tape. This video shows six different key machines that Framon manufacturers. It also shows each key machine in detail, how to originate keys, how to adjust the key machine, and several optional pieces of equipment that are available. Watching this tape is a must for anyone who has never used a Framon Key Machine. It is very well done. (I watched it twice.)

The FRA-2 is a thinking man's machine. It is a micrometer machine with standard adjustments for both spacing and depth. An overview of the base of the machine can be seen in photograph two. Once you set the depth and spacing, just pull the lever to bring the whole base of the machine squarely into the cutter.

Photograph three shows the spacing block and the spacing knob. Each turn of the space knob is worth .0050". To the left of the spacing block is the spacing adjuster. This calibrates the correct spacing for the first cut. This can be seen in photograph four. Also, in this photograph, the Depth Base Plate can be seen. This plate lets you quickly see the depth that you are cutting.

In photograph five we can see the cutter head rotated to the left side to cut a Medeco key by code. I will not get into the adjustments and sequences to cut a key. It is technical and one should be used to reading a micrometer to fully appreciate the machinist quality of this unit.

Silca Matrix SLX

The next key machine tested is the Silca Matrix SLX, a Cadillac of High Security Duplicating Machines. This machine duplicates all dimple type keys, two and four track Mercedes, laser cut keys, Fichet four sided keys, and Lexus type keys.

Locksmiths performing any high security key cutting can certainly justify purchasing this workhorse of a key duplicator. There are several features that make this machine a real winner.

First, and foremost, the machine is designed for ease of use. It is ergonomically designed to lessen fatigue, and includes a light in the base that illuminates the keys whilst being duplicated.

The machine incorporates an electro-mechanical depth adjustment system that makes setting up a cutter and stylus fast and accurate. On different machines, one has to gauge by eye, or with the use of a piece of .003" paper to set the depth. One has to rotate the cutter by hand to see if it is touching and marking the blank. This antiquated system is over with using the Matrix system.

In photograph six we see the on/off switch, two red arrows, and one green arrow. The red button to the right is the cutter lock button. The wheel to the left upper part of the picture shows the two stylus positions, direct (or non-movable) for Laser cuts, and a spring operated position for dimple keys.

Continued from page 42



8. The Matrix SLX includes a hidden tray and knob controls for table functions.

To adjust the depth, insert the cutter and the tracing stylus all the way into their collet and tighten. Push the depth adjusting button and lower the handle so that the cutter and the stylus touch a part of the key that is not cut.

If the green arrow lights up, the depths are perfect. If not, either one or the other of the red arrows lights up. Each arrow shows a direction to turn the micrometer adjusting nut for the stylus. A couple of minor adjustments, and the green arrow lights, and you are ready to duplicate.

With the stylus set in the spring position and the correct stylus and cutter installed, all dimple keys are easy to cut.

Photograph seven shows two Kaba 14 keys that I cut. They worked perfect. Photograph eight shows the base plate control screws, and the cover plate for holding all the tools and stylus, and cutters.

Photograph nine shows two different laser type keys being cut. One is a valet key for Lexus, and the other is a Mercedes 4-track. Note the excellent cutter guard on the Matrix. What makes the Matrix SLX the top model of this series is the fact that both vises tip to cut angle dimple keys.

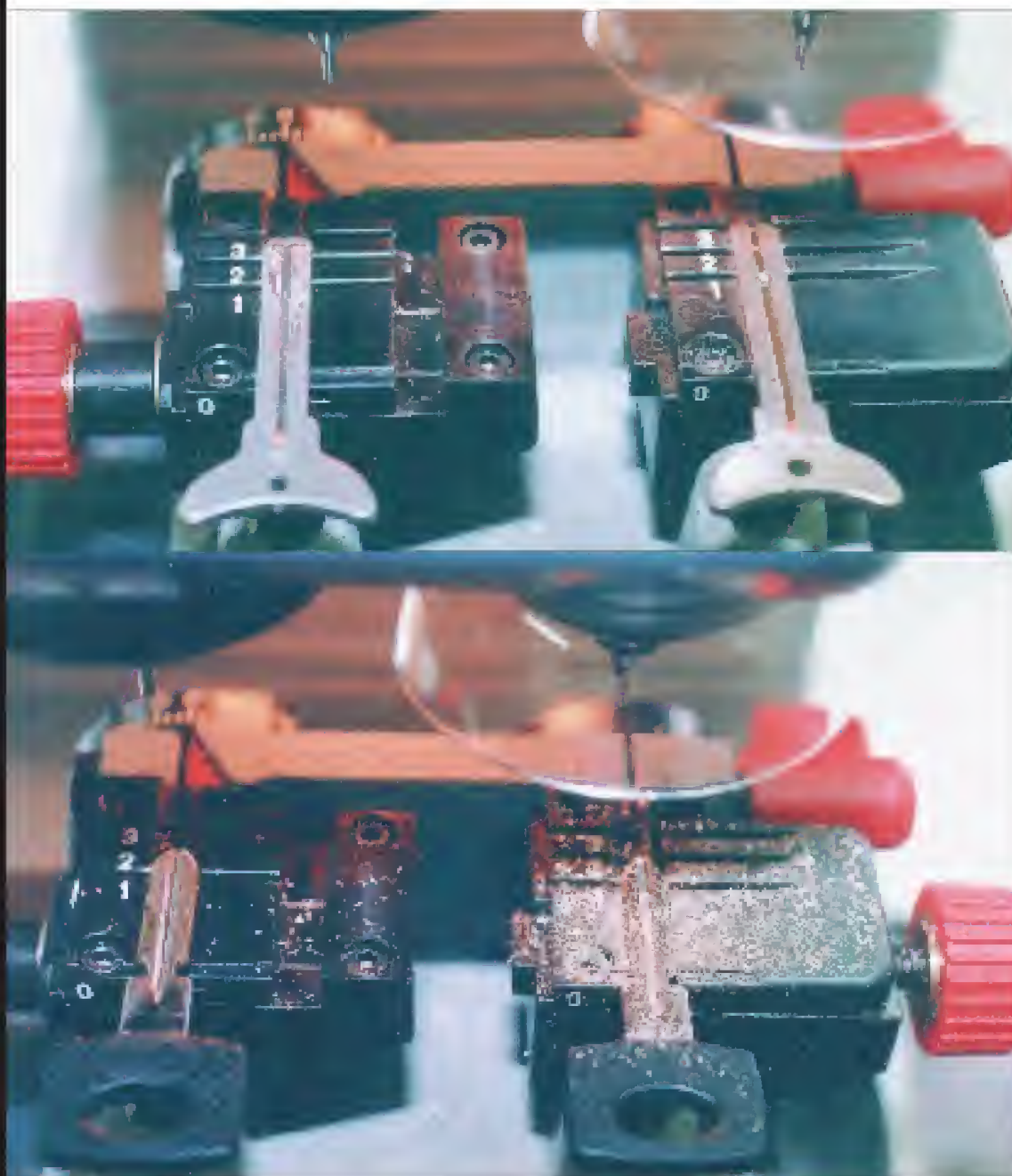
Even though photograph 10 has Mercedes keys in the vises, one can see how they easily tip to cut angle keys or cuts when needed. Part of the built in light is also be seen in the back of this photo.

HPC 3333 Trace-A-Key®

Last, but not least, I field tested the Trace-A-Key key machine by HPC. This is seen in photograph 11. This is a simple, but diabolical high speed duplicating key machine that also duplicates Medeco keys.

The expert I consulted on this machine was myself. I have used this machine for many years. My machine includes an optional set up so that it works on either 12 volts or 110 volts, letting me operate from my truck or my office. I did purchase the optional Medeco cutter and vise. This is the machine that I cut all my Medeco duplicates on. They are perfect every time.

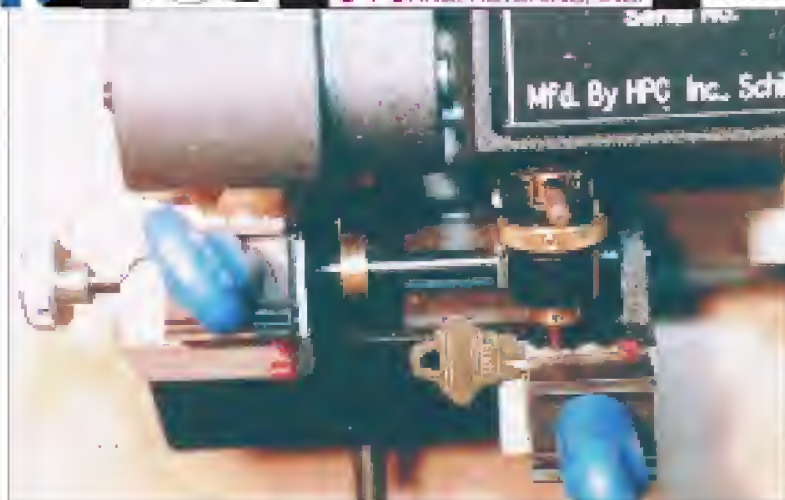
This is the only key machine I have that makes me hesitate before cutting a key. With this machine, the pattern key goes into the RIGHT vise, and the blank key goes in the LEFT vise.



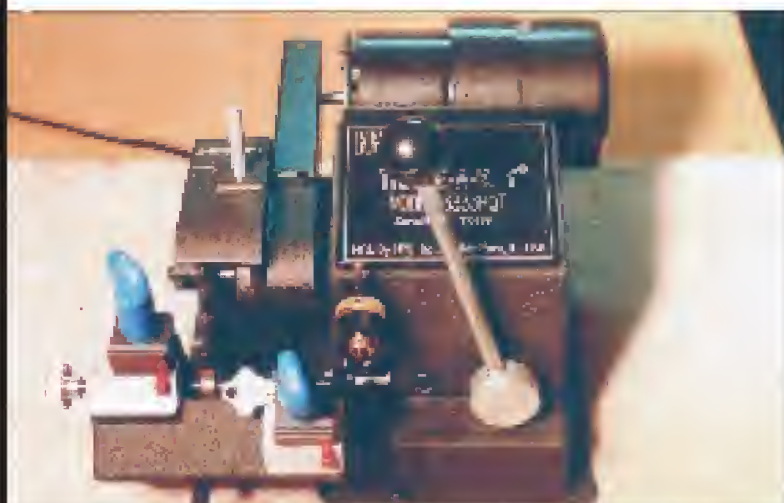
9. Getting ready to cut Lexus Valet Key (top). And cutting a Mercedes 4-track with cutter shield in place (bottom).



10. Both tables tilt for cutting angled dimple keys.



12. Pattern Key is in Right vise and key is cut Tip to Bow.



11. HPC's Trace-A-Key High Speed Duplicator

This is different from all my other key duplicating key machines. Another difference is that the key is cut from the TIP of the key blank towards the shoulder.

Many key blanks of the same or comparable number may differ a little in the tip configuration. When duplicating keys when using key blanks made by different manufacturers, you may start to hear cutting before the tracer contacts the tracing key. This is OK. The key will work. The tip cutting has no bearing on the work ability of the duplicated key, as long as the key is stopped in the jaws correctly.

Photograph 12 shows me duplicating a Schlage key from the tip to the shoulder. The stylus is in the center of the key.

To duplicate a Medeco key, one must first decode the cuts and install the cutter and the special vise. It is real easy to decode the cuts on a Medeco key. Here is how I do it. I hold the key vertically straight up and down in front of me. I look at the cut base. If the cut goes straight across from 3 o'clock to 9 o'clock, this is a CENTER cut which means the cutter is in the standard cutting position.

If the cut appears to go between 8 to 2 o'clock, then it is a LEFT cut. If the cut goes between 10 to 4 o'clock, then it is a RIGHT cut. Eyeing the key, I write these directions down. It might appear as C, C, R, L, R, L. From the shoulder, it reads,



13. Key machine vise and guide turned to cut Left cuts on Medeco keys.

CENTER, CENTER, RIGHT, LEFT, RIGHT LEFT.

Photograph 13 shows the Trace-A-Key cutter and stylus moved to the right. This is for cutting the LEFT cuts on the Medeco key. This is shown quite well on the cutter base and the cutter is locked in position by a spring loaded pin.

The proper procedure for cutting a Medeco key is to first cut all the CENTER cuts, then all the LEFT cuts, and then the RIGHT cuts. That way you only move the cutter head three times at most for any one key. As one can see, the Trace-A-Key has the same base as the 1200 key cutter. It is both a very accurate and fast machine.

Conclusion

I will continue to test these machines and put them through their paces. Later, I will write a follow up article on each machine separately with more thoughts and comments.

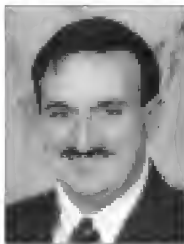
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COVER
STORY!Let's Get
Tubular!*(O-K, not THAT kind of "tubular".)*

by
**Steve
Gebbia**

**Steve reviews
three favorite machines
for cashing in on
tubular key cutting profits -
including the new
HPC/Scotsman 747XU.**

Tubular locks. There's a ton of them out there! Although not as popular as they used to be, these locks are still widely used on vending and other coin-op machines. Cam locks and showcase locks with tubular keys are becoming more and more common as well. What does this mean for you? Lots of keys that need to be copied! Although many hardware stores, home centers, and department stores now duplicate keys, few, if any, have the machinery required to accurately duplicate tubular keys. This is one of the few areas that locksmiths still dominate.

Do you have the tools to duplicate these keys? No?! Why not? What's that you say? 'The machines are awkward and

hard to use? You don't have a walk-in showroom? You don't have power in your service vehicle? It's too big of an investment for a machine that only cuts one size and type of key?' Sorry, those excuses don't wash. You've just been looking at the wrong machines! There are machines that are easy to operate and cut all the common sizes and styles of tubular keys. Some of them don't even require electricity.

The HPC/Scotsman 747XU

Recently acquired by HPC, Scotsman Security Products has a long and proud history of manufacturing high quality products and machinery. This tradition is sure to continue



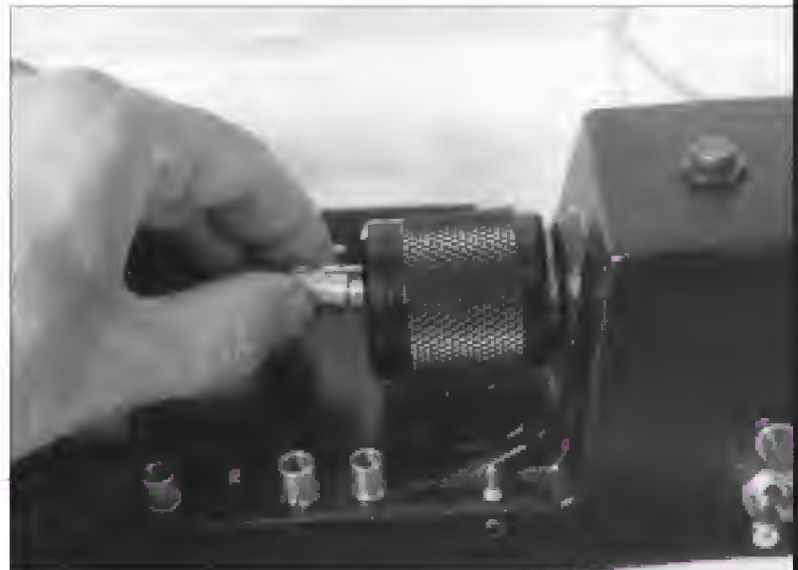
1. Recently acquired by HPC, the new HPC/Scotsman 747XU tubular key machine has been a workhorse among the specialty key cutting machines.



3. Finally, check the depth of cut wheel.



2. This dial is used to adjust the motor height setting.



4. Insert the key and lightly tighten.



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5. With the original key on the collet, push until the blank touches the cutter.



6. For code cutting a spacing tool is used in place of an original key.



7. The Herty Gerty by A-1 Manufacturing.



9. The Herty Gerty consists of several easy to use components.



8. As all cutting on the Herty Gerty is done by code, a decoder is included.



10. The handle of the unit determines the depth of the cut.

under the new name of HPC/ Scotsman. When it comes to duplicating tubular keys, the 747XU has long been the workhorse of the industry. (See photograph 1.) This is an all-purpose machine designed for daily, high production use. It will provide many years of trouble-free service.

Some of the features of the 747XU are:

- Accepts standard, small, and large diameter tubular keys
- Cuts double-cut alarm keys (cut-within-a-cut)
- Duplicates or cuts keys by code (all sizes)
- Adjustable tip stop
- Adjustable motor height (for duplicating double-cut keys)
- Large easy-grip knurled ring for securing key blank in machine
- Safety switch (machine turns off when cover is opened)
- Compact size makes it easy to take with to the jobsite

Before inserting the blank to be cut there are three adjustments to make:

First, check that the proper size collet is on the machine. Small keys use collet 1, standard keys use collet 2, and large diameter keys use collet 3. These are easily changed using the Allen wrench included with the machine.

Second, check the motor height setting. (See photograph 2.) This controls how deeply the cutter bites into the key blank. For small diameter keys, use setting number 1. Standard diameter keys use setting number 2. Setting 3a is used to make the primary cut of a double cut, large diameter key. The smaller, secondary cut is made with the motor height adjusted to setting 3b.

The final item to check before inserting the blank is the depth of cut wheel located on the end of the machine. (See



11. The assembled machine, ready to cut a key.

photograph 3.) This should be set to 'D' for duplicate. If you were cutting a key by code, you would dial in the proper depth for each cut here.

This machine is similar to any duplicating machine in one respect. In order to produce an accurate duplicate key, the original must be placed in the machine in the proper position. The easiest and most reliable way to ensure proper positioning is:

Insert the keyblank into the machine (allow about half of the tubular section of the blank to protrude from the machine) and tighten the knurled ring until it is just slightly snug. You want the blank to be able to move slightly at this point. (See photograph 4.)



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12. Herty Gerty in action.

Place the original key on the collet and slowly push inward against the spring tension until the blank touches the cutter. (See photograph 5.) (If the original touches the key stop first, adjust the blank so that more of it protrudes from the machine.)

Continue to push inward until the original is touching the key stop and the blank is just touching the high spot on the cutter. This just sounds hard to do - once you try it you'll see how easy it really is. Tighten the knurled ring securely. (Do not overtighten it or it will be difficult to loosen.)

Check your adjustment by holding the original against the key stop and slowly rotating the cutter with your finger. If the cutter just barely scrapes the blank, your adjustment is correct. If it doesn't, reposition the blank until it is correct.

It's that simple. The first time you try this, it may be slightly awkward. After you do it once or twice, though, it becomes second nature. Remember the first time you tried to follow the plug out of a loaded cylinder? How many pins did you drop? How many do you drop now?

Cutting a key by code is just as easy. Instead of placing an original key on the collet, a spacing tool is provided. (See photograph 6.) Use this to position your cuts on the key and use the depth wheel to dial in the depths.

A-1's Herty Gerty

The Herty-Gerty by A-1 Manufacturing is a high quality duplicator with a difference. It comes in a compact size - just big enough to fit in the palm of your hand. This is good because that is how it is powered - by your hand! It comes packed in a sturdy carrying case along with the spacing plates, decoding tool, and palm grip. (See photograph 7.)

All duplication with this machine is done by code. Photograph eight shows the decoder included with the machine.

The Herty-Gerty is comprised of several components. (See photograph 9.) The main body holds the spacing plate that is used to index the keyblank to the proper positioning of the cuts. There are three plates - one for each size key blank (small, standard, and large). A screw on the cutter's body holds the plate to the body and determines the alignment of the cuts. This allows easy positioning to accommodate cuts that are offset to the right or the left.

The crank handle assembly holds the cutter and provides a comfortable handle to rotate the cutter. Additionally, it is used to set the depth of cut. A set screw on the handle locks



13. The compact HPC Pocket Cut-Up™ tubular key cutting machine in carrying tube.

into a detent to select the depth of cut you desire. (See photograph 10.)

Photograph 11 shows the machine assembled and ready to cut a key. Simply place the blank on the spacing plate and rotate the handle clockwise to make the cut. (See photograph 12.) Reposition the blank, adjust the depth setting, and make the next cut. In just a few minutes, you have an accurately cut key.

The palm grip included with the machine does prevent the blank from digging into your hand, but it lacks somewhat in comfort. A metal guard covering the entire blank may be more comfortable to use. This is the only flaw in an otherwise excellent product.

HPC's Pocket Cut-Up™

HPC also makes a portable tubular key machine. The Pocket Cut-Up™ is a quality made product that is extremely compact in size. It comes packaged in a convenient carrying tube along with a key decoder and Allen wrench. (See photograph 13.) The wrench is used to change cutters.

This machine cuts standard size tubular keys by code, including keys that are offset right, left, or center. (See photograph 14.)

Photograph 15 shows the machine ready to accept a key blank. At the right end of the machine is the cutter wheel. This wheel is knurled to allow a sure grip. The rear (non-



14. The Pocket Cut-Up™ is capable of cutting left, center and right, standard size tubular keys.

Continued from page 52

cutting) end of the cutter shaft can be seen protruding through this wheel.

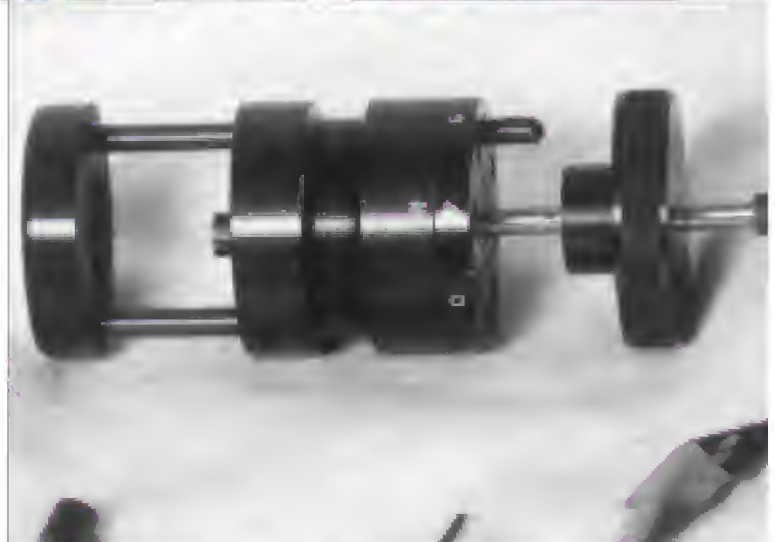
The depth is dialed in on the numbered depth wheel. Replacing the key blank cover (left end of machine) secures this wheel from rotating and changing the depth.

Simply insert the blank, dial in the depth, replace the key blank cover, and give the cutting wheel a few spins. (Always turn the cutter in the clockwise direction.) Repeat for each subsequent cut.

The key blank cover is a solid piece of metal with a hollowed-out area for the head of the blank, forming a very comfortable grip. If there are any shortcomings for this cutter it is having the shaft of the cutter protruding from the back of the grip. If the grip is not grasped or turned properly, the back of the shaft can press into the palm of the hand and become uncomfortable. A shorter cutter shaft may make this machine more comfortable to use.

If you rarely cut small or large diameter keys, this machine makes a great addition to your service vehicle tool box.

Actually, any of these machines are a nice addition to your shop or your service vehicle. The low price of the hand operated machines make them an excellent choice for the shop that doesn't get much call for duplicating tubular keys. The 747XU, on the other hand, is competitively priced, takes up very little space and fits nicely into a service truck. Whether used in-shop or on the road, it is the choice for cutting large quantities of keys accurately.



15. The Pocket Cut-Up™, ready to accept a key for cutting.

No matter what machine (or machines) you choose, be assured that you will produce accurately cut keys in a matter of just a few minutes, and raking in those tubular key profits.

For more information on the above products contact:

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THE BLUE PUNCH MACHINE BY PRO-LOK

*Built as a dedicated punch machine,
the Blue Punch can accurately and quickly cut keys
without the need for power.*

Cutter Vs. Punch

Key machines generally fall into two major categories; key cutters, which use a rotating cutting wheel to grind out a portion of the key, and punch machines, which use a punch and die to clip out a section of the key. One of the biggest advantages of a punch type key machine is that they are hand operated. You are not limited to using the key machine near an outlet. This gives you a great deal of freedom. You can take your key machine right to the job site, carry it in your truck or move it into the shop. And, instead of walking back and forth between the key machine and the job site, you can spend your time doing your actual work. This type of freedom can make you more productive. When you are more productive you can make more money.

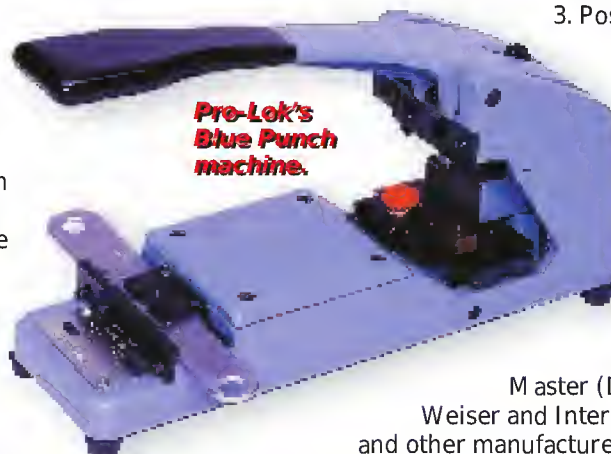
Dedicated Vs. Universal

The universal type punch machines are designed to cut keys for many different manufacturers' locks. These types of machines are very handy in that they can cut a variety of manufacturers keys on one machine. Like a key cutting machine, however, it is important that the correct punch and die be used for a given key. If not, the locksmith may find himself compromising accuracy for convenience.

For example; the width of the bottom of the cut on an Best/ Falcon interchangeable core key should be just over .050"; the width of the bottom of the cut on an Kwikset key should be just over .080". These two measurements are .030" different! If you set up your cutter to cut Kwikset then it's too wide to accurately cut interchangeable core, if you use a narrow cutter to cut interchangeable core, then your Kwikset key cuts won't be right. These universal machines are fine for most applications as long as the correct punch and die are used.

The other end of the spectrum is the dedicated punch key machines. These key machines are often sold by a lock manufacturer to cut just their own brand keys. Because these machines cut only the keys of one manufacturer, the accuracy of these machines is excellent. As these machines cut only one manufacturer's key, a separate machine is purchased for each manufacturer. In general, locksmiths or lock shops with large commercial accounts find this type of machine an advantage.

With those distinctions made, the Blue Punch machine by Pro-Lok is a punch type, dedicated key machine, set up to the OEM spacing, depth and width of cut specifications of specific manufacturers. Following, we take a look at this machine.



Construction And Operation

The Blue Punch is a compact, durable machine. The parts are a mixture of milled aluminum, cast aluminum and hardened steel pieces. Sealed bearings, super duty fasteners and long life springs round out the listing of components that are used to assemble the unit.

The spacing is spring controlled and automatically advances to the next space every time the punch handle is depressed. The depth for each cut is controlled by the code bar at the front of the machine, and is hand set by the locksmith as the key advances. In essence, every time a cut is made, the locksmith need only enter the depth for the advancing cut, and punch.

This is especially helpful for locksmiths who are supporting hotels, schools or multi-tenant facilities, and are often faced with the need to cut tens or hundreds of keys at a time.

To cut a key on the "Blue Punch" you:

1. Clamp the key into the Vise Jaw (just like any key machine).
2. Push the carriage over to the starting position.
3. Position the code bar (depth control) at the first cut, push down the handle. The key is automatically advanced to the next cut.
4. Position the code bar at the second cut, push down the handle.

Continue this operation for all cuts.

Manufacturers Supported

The Blue Punch is available to cut Corbin Russwin Sys 70, Master (Dexter), Kwikset, Schlage, Weslock, Weiser and Interchangeable Core from Best, Falcon, and other manufacturers using Best specifications

For those of you who own either an old "Codemac 101," "ASM," "Keymak" or an Armbruster "Keypunch," you'll be happy to know that the Blue Punch is still alive and kicking. At the end of 1993 Pro-Lok bought all of the tooling and components for the Blue Punch from Armbruster Tool and Die. Since then Pro-Lok has resumed production on this popular key machine, available through authorized Pro-Lok distributors. Pro-Lok is also repairing existing "Codemac 101," "ASM," "Keymak" and Armbruster "Keypunch" key machines.

Conclusion

It's a fact. Original keys are better than duplicates. With the Blue Punch you can create factory original keys on the job site. The machine allows you to cut keys accurately and quickly, and frees you from the need for power.

For more information, contact a Pro-Lok distributor or call Pro-Lok at (714) 633-0681. 

CLOSE THAT DOOR!

Choosing the right door closer isn't hard, if you know the right questions. Take a quick course in in door closers.

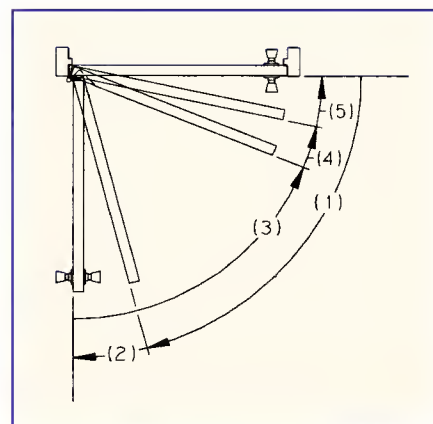
by Jeff Fenwick, AHC

Almost every door in commercial, industrial and institutional buildings today is opened by the person passing through it but closed by a mechanical door closer. Most people take for granted that these ubiquitous devices keep the door under orderly control at all times. Their role is more than simply closing the door, however. Properly applied, they provide a wide range of door control functions and help prevent damage to the door, hinges and related components. Now, more than ever, the need for safety and convenience in public places makes the door closer an important part of most openings.

Striving for Perfect Door Operation

Springs inside the door closer generate the power to close the door, and the speed of the door's swing as it closes is controlled by the closer's regulated hydraulic circuits. The aim of the mechanical control provided by the closer is perfect door operation. Let's look at what that entails: (See illustration 1.)

1. On the opening swing, the door closer lets the door open easily, but when it gets to the end of the swing, it provides backcheck.
2. Backcheck is a feature that cushions the last part of the opening swing to prevent the door from slamming into the stop. Some special closers designed for potentially



1. Breaking the swing of a door down into segmented arcs, we can better identify perfect door operation. On opening, the door moves through its normal swing (1) until the end when it is cushioned by the backcheck (2). The closing speed of a door is divided into general (3), the transition (4), and the latching (5) speeds.

The National Locksmith®



HOSPITAL SECURITY WITH SECURITRON

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QUICK TIPS FOR STAYING ON TOP

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MEASURING FOR PROFITS

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PROFITS THAT LAY AT YOUR FEET

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GOING TURBO WITH ASSA TWIN V-10

page 18-DHI

IC CORE PRODUCTS BY KSP

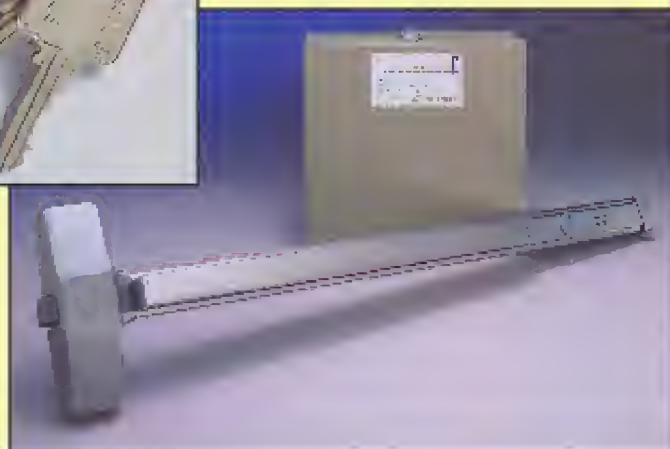
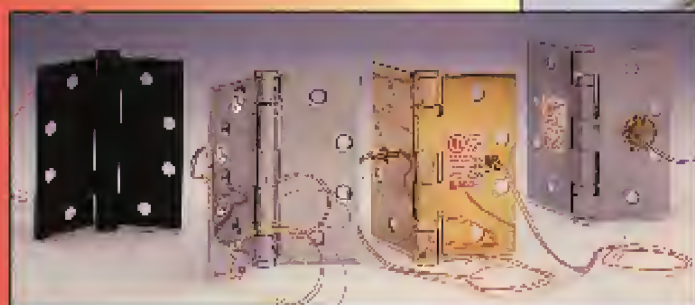
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PRODUCT SHOWCASE

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EXHIBITOR BOOTH LISTINGS

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WELCOME TO THE SHOW

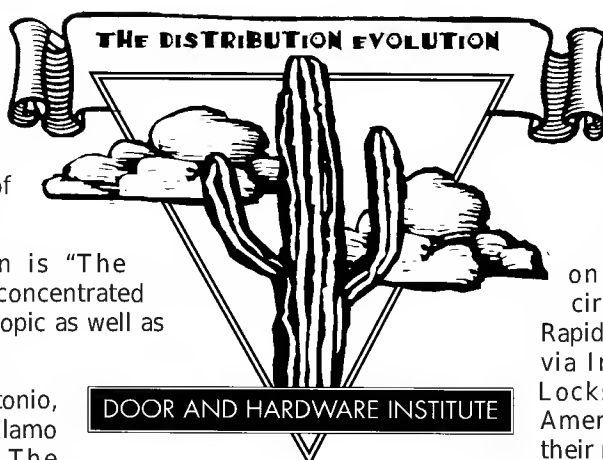
Welcome to the 20th Annual W Convention and Trade Show of the Door and Hardware Institute. This special issue of The National Locksmith is the eighth annual issue designed to bring the locksmith specifier important news in the world of architectural and builders' hardware.

The theme for the convention is "The Distribution Evolution," and over 20 concentrated educational sessions will discuss this topic as well as explore technical issues of the future.

Host for this year's show is San Antonio, Texas, where yesterday's legendary Alamo anchors today's progressive city. The convention center is convenient to Rivercenter Mall and the River Walk with more than 300 restaurants, cafes, shops and nightclubs, plus their famous tour boats.

This year's convention has been streamlined to take place over three days, October 14-16, at the Henry B.

Gonzalez Convention Center, North Exhibit Hall, 200 East Market in San Antonio. Show hours are 5 p.m. to 7:30 p.m. Saturday, Oct. 14; 9 a.m. to 3 p.m. Sunday, Oct. 15, and 9 a.m. to 1 p.m. Monday, Oct. 16. The trade show continues to display every category of product and service related to the industry and provides the opportunity to see the latest products and trends.



This issue contains booth listings for the convention. Also included on the following pages is our Product Showcase, presenting a wide range of product either being exhibited at the show or of interest to the industry.

Readers wanting more information on the products in this issue can circle the product's number on the Rapid Reply card, or send their request via Internet E-Mail to The National Locksmith at natlock@aol.com. America Online subscribers can send their request to NATL LOCK.

More information about this year's DHI convention is available from the association at 14170 Newbrook Dr., Chantilly, VA 22021-2223, (703) 222-2010, fax (703) 222-2410. **TNL**



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EXHIBITOR LISTINGS

A & J Washroom Accessories
Access Control Magazine
Communication Channels Inc.
Access Technology, Inc.
Accurate Lock and Hardware Co.
Adams Rite Manufacturing Co.
ADHACO Hardware
Advanced Hardware Technologies
Air Louvers Inc.
Alarm Lock Systems Inc.
Algoma Hardwoods Inc.
Almet International Inc.
American Device Mfg. Co.
Ampco Products Inc.
Amweld Building Products
Anemostat Products
Architectural Builders Hardware
Manufacturing Inc.
Arrow Lock Manufacturing Co.
Auth-Florence Manufacturing Co.
Baton Lock and Hardware Co., Inc.
Benchmark Commercial Division
General Products Co.
Best Lock Corp.
Bommer Industries Inc.
Boyle and Chase Inc.
Bramlett-Siso Security Stytems
R.R. Brink Locking Systems Inc.
Buell Door Corp.
Cal-Royal Products
Ceco Door Products
Chase-Durus Industries Inc.
Chem-Pruf Door Co.
Corbin Russwin Architectural
Hardware
Corrim Door Systems
K.N. Crowder Inc.
Curries Co.
Custom Hardware Manufacturing
Cutler Manufacturing Corp.
Dayton Industries Inc.

Dansteel Manufacturing Co.
Detex Corp.
Don-Jo Manufacturing Inc.
Door Controls International
Dor-O-Matic
Dorma Door Controls Inc.
DynaLock Corp
Eggers Industries
Entres International Ltd.
ESSEX Industries Inc.
Fenestra Corp.
FIB-R-DOR Sub. Advance
Fiberglass Inc.
S.W. Fleming Ltd.
Gallery Specialty Hardware Ltd.
Graham manufacturing Corp.
Guggenheim Metals Co.
Hardin Manufacturing Inc.
Hager Hinge Co.
Hettich America L.P.
HEWI Inc.
Hiawatha Inc.
High Security 777 Lock Corporation
HPC Inc.
Ideal Architectural Doors and
Plywood
Imperial Decor
Ingersoll-Rand Group Schlage
- Von Duprin
H.B. Ives A Harrow Co.
J.L. Industries
Jackson Corp.
Jensen Industries Inc.
JLM Wholesale
L.E. Johnson Products Inc.
Karpen Steel Custom Doors &
Frames
The Kewanee Corp.
Kickplate Co. Inc.
Killeen Security Products
Krieger Steel Products Co.

Lawrence Brothers Inc.
LCN Closers
Leslie-Locke Inc.
Liberty Hardware Manufacturing
Corp.
Locknetics Security Engineering.
Locksmith Ledger International
Lockwood
Lori Lock Co.
The Louisiana Door Co. Inc.
Lund Equipment Co. Inc.
M.A.G. Engineering and
Manufacturing Co. Inc.
The Maiman Co.
MMF Industries Major Metalfab Co.
Markar Products Inc.
MARKS USA
Marlite
Marshall Vega Corp.
McKinney/Parker
Microwave Sensors Inc.
Mohawk Flush Doors Inc.
Mont-Hard (Canada) Inc.
MSI Door Hardware Group
Namasco Division Sub. Klockner
Namasco Corp.
Nanotechnology
National Custom Hollow Metal
National Guard Products Inc.
The National Locksmith
Newman Tonks Inc.
Norfield Industries
Norton Door Controls
NT Falcon Lock
NT Monarch Hardware and
Manufacturing Co.
NT Quality Hardware and
Manufacturing Co.
Ohio Valley Door Corp.
Optex (USA) Inc.
OSI Security Devices

Continued from page 4

S. Parker Hardware Manufacturing Corp.
PBB Inc.
PDQ Industries Inc.
PEMKO
Pioneer Industries
Precision Hardware Inc.
Quick Draw Southwest
Rediframe/Slimfold Products
Reese Enterprises Inc.
Republic Builders Products
Rixson
Rockwood Manufacturing Co.
Rofu International Corp.
Rutherford Controls Inc.
Safety and Fire Technology Inc. (SAFTI)
Sargent and Greenleaf Inc.
Sargent Manufacturing Co.

Schlage Lock Co.
Securitech Group Inc.
Securiton Magnalock Corp.
Security Door Controls
Security Lock Distributors
Signature Brass Manufacturing Co.
Simplex Access Controls
Southern Steel Co. Division of Phelps-Tointon
Southwood Door Co.
Stanley Hardware
Steelcraft Co. Sub. of Mascotech
Tanner Bolt and Nut Corp.
Taymor Industries
Technical Glass Products
Tempo Import and Export (USA) Inc.
Timely Industries Inc.
Tite-Lok
Trans-Atlantic Co.
Trego Industries Inc.

TRIMCO/BBW
Trine Products Corp.
Underwriters Laboratories
Underwriters' Laboratories of Canada
V.T. Industries Inc.
Vancouver Door Co. Inc.
Von Duprin Inc.
Wornock Hersey Inchcape Testing Services
Western Oregon Door Inc.
Weyerhaeuser Co. Architectural Door Division
Winfield Division of CSS/A Masco Co.
Winfire International
Winner International
Woodfold-Marco Manufacturing Inc.
Woodtech Trading Co., Inc.
Yale Security Inc.
Zero International Inc.

TNL



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PRODUCT SHOWCASE

Dorma 640/650 Series Closers

The Dorma Group has expanded its size adjustable 640/650 Series to include sized, non-adjustable closers in sizes 2, 3, 4, 5, and 6. The new products have the same features as the company's 600/610 Series closer line, which will be phased out. With this introduction, Dorma now offers a common screw hole pattern and mounting position throughout the entire 640/650 line, making retrofit installation much simpler.



Dorma also announced that its complete line of specialty arms are now available throughout the entire 640 Series line.

Dorma Door Controls Inc., markets a complete line of hydraulic closers, door operators closer-holder-release devices, accessories and related builders' hardware. American Device Manufacturing Co., markets a comprehensive line of exit devices and accessories, security hardware and postal specialties.

For FREE Information
Circle 394 on Rapid Reply

National Cabinet Locks' Furniture Locks

National Cabinet Lock has a broad line of locks for use in furniture and

case goods, designed to meet the needs of variety of configurations or styles.

National Cabinet Lock also offers custom lock design services where existing designs will not apply.



The National Cabinet Lock product line includes pin tumbler, disc tumbler and lever tumbler locks. Designs include surface-mounted drawer/door locks, full mortise drawer/door or lid locks, half mortise removable cylinder drawer locks (dead- or spring-bolt), surface-mounted lid locks, plunger bolt sliding door locks and desk pedestal gang locks. Many of the most popular locks are included in the Stock@Locks ready-to-ship inventory program. Standard finishes include brass (antique, bright, dull or satin), chrome (bright or dull), nickel (bright or dull) and zinc plate.

For FREE Information
Circle 395 on Rapid Reply

Kwikset Introduces Titan Commercial Series

Kwikset Corporation introduces the Titan Commercial Series Levers.

Built to the highest Titan standards, the Titan Commercial Series exceeds all Underwriters' Laboratories (UL) and American National Standard Institute (ANSI) Grade 2 specifications. Further,



the new Titan Commercial Series Levers meet the highest user and security requirements, and feature front removable cylinders for fast and easy re-keying.

Titan Commercial Series Levers are available in three different styles to offer more decorative options in a category which has traditionally been very basic in the area of lever design. These new levers are available in three keyed functions: entry, classroom, storeroom and three unkeyed functions: passage, restroom, and dummy. The new levers are available in polished brass, satin chrome, and an oil-rubbed finish.

For FREE Information
Circle 396 on Rapid Reply

Corbin Russwin's Economy Exit Device Trim



Corbin Russwin Architectural Hardware announces the introduction of a new economy priced lever handle trim for their ED8000 Series Pushbar Exit Device.

This new trim, which uses major components from the company's successful CL3600 Series Grade 1 key-in-lever lockset, meets ANSI Grade 1 standards and fits 1-3/4" to 2-1/4" doors. It is throughbolted for strength, yet installation is easier because the throughbolts mount

within the standard 2-1/2" prep. The new trim matches the Corbin Russwin lever lockset offering, with the same cylinder, options, and finishes.

**For FREE Information
Circle 397 on Rapid Reply**

Von Duprin Lever Trim For 948 & 99 Exit Devices

Von Duprin introduces a new breakaway-type lever trim to significantly reduce damage from vandalism and abuse, while also helping meet ADA-mandated accessibility standards. The patented new Breakaway[®] lever trim is available for Von Duprin Series 98 and 99 exit devices and also can be installed in existing 992L lever door preps for retrofit.

The new design allows the lever to break away and drop into a down position when abused, discouraging further abuse and protecting its internal parts. However, it can be easily reset to its operating position by a simple uplift motion. Furthermore, it

eliminates the unsightly droop common to lever trims as they wear and lose adjustment, as well as the maintenance required to correct this condition.



When unlocked, the new unit operates as a normal lever trim and will also break away. When locked, it feels locked but "breaks" when more than 35 lb. ft. of torque are applied to the lever, which travels to a 90-degree position. The lever is easily reset, however. To prevent further damage, an easily replaced shear pin breaks at 65 to 75 lb. ft. torque.

**For FREE Information
Circle 398 on Rapid Reply**

Council Series Sliding Door Hardware From P.C. Henderson

The Council series of sliding door hardware from P.C. Henderson, Inc., will reliably hold oversized center-folding or end-folding doors and partitions of up to 15' high and 3' wide, with weights of up to 180 pounds per leaf. The hardware will accommodate an unlimited number of



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folding units. All hardware is concealed. Typical applications for Council series hardware include room dividers in hotels and office buildings, mall store fronts, theaters, sports halls and restaurants.

**For FREE Information
Circle 399 on Rapid Reply**

Jado Diamond Finish

Simply brilliant! Diamond Finish: a revolutionary and exclusive process, which creates a metal finish used to plate our brass. It provides an extremely hard, yet brilliant coat to the product. In fact, Diamond Finish now carries a full lifetime finish warranty. The Finish protects against tarnishing caused by mother nature's harshest elements—humid salt air and ultra-violet rays.

Diamond Finish requires no scrubbing or heavy polishing. Just a simple light polishing with a soft cloth will remove dust, finger prints and restore the high luster to the product. Diamond Finish is available on Jado's fine door hardware products.



**For FREE Information
Circle 400 on Rapid Reply**

Stand Alone Access Control System From Litton

Litton's UL approved PointGuard[®] card access control system provides coverage for one to 16 doors and accommodates up to 2,100 users per door.

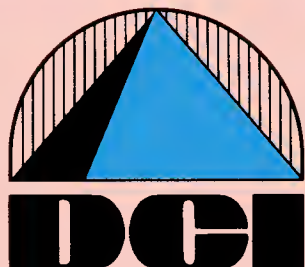
PointGuard is designed to provide card access control and alarm input capabilities by combining only the modules required to meet a facility's specific needs. The system's modular design incorporates LonWorks[®] technology from Echelon which utilizes a Neuron[®] chip. The Neuron chip is included in the door control modules, as well as the keypad and card readers, providing intelligence at each door.



Two versions of PointGuard are available - the single door system for one door, and the multi-door system for up to 16 doors. To add an additional door with PointGuard, simply purchase a DoorPak. DoorPak is the group of modules necessary to provide access control and alarm input functions at one door.

The system's Command Center includes a 32-character, back-lit, high-resolution Liquid Crystal Display (LCD). The 10-digit numeric keypad and system function keys combine to provide a simple to use control point for the PointGuard system. The system accommodates Wiegand cards as well as any Mag Stripe Track II card, including a personal credit card, which minimizes start-up/installation costs.

**For FREE Information
Circle 401 on Rapid Reply**



***D on't panic!
We have Security
Exit Devices.***

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Vandal Proof Mfg.'s EK1 Closer

The EK1 Closer has a rugged, stainless steel one piece arm assembly. Every component of the arm and bracket is permanently heli Arc welded and will not come apart.



The sealed bearing eliminates all stress from the hydraulic unit enabling it to last longer. No other closer has this feature.

The EK1 series closer utilizes an LCN hydraulic unit (one of the industry's most respected) with its multi faceted configurations allowing the purchaser to change the opening speed, back check, and latch speed to their own installation.

This door closer is applicable to installations in schools, residential and

commercial buildings, hospitals, roof doors; on reinforced hollow metal doors, marine applications, and juvenile facilities. The EK1 can be installed on stainless steel and aluminum stile door and frames.

**For FREE Information
Circle 402 on Rapid Reply**

Nanotechnology's NanoLox

Incorporating a Schlage Series D Model Rhodes lockset, the NanoLox pushbutton Electronic Access Control



system now has a weather-proof version for outdoor use. It features 125, 253, 509 or 1,021 user-programmable, variable-length codes. It is maintenance free: no need for battery nor external wiring. Other features include a lock-out mode after four unsuccessful trials and key override.

**For FREE Information
Circle 403 on Rapid Reply**

Zero High Performance Door Hinges

Designed for smooth, effortless door swing, the UNIGEAR Hinge System integrates two extruded aluminum "geared" segments in a cover channel, with support bearings of long-wearing, self-lubricating Delrin[®] which absorb shock and distribute weight evenly. The hinge rotates a full 180 degrees to enable doors to open easily to maximum width. Well suited for both new and retrofit construction, the UNIGEAR system is tamper and weatherproof and performs effectively on doors up to 9'. New options for mortised and

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half-mortised mountings are now available to increase specifiers' design latitude. Constructed from heavy-gauge aluminum, all models are offered in a choice of three finishes.

Zero's UNIPIN Hinge incorporates traditional "knuckle hinge" design in a heavy-duty continuous hinge constructed of either cold rolled prime painted steel or polished stainless steel. The UNIPIN is appropriate for

use with metal and wood doors.

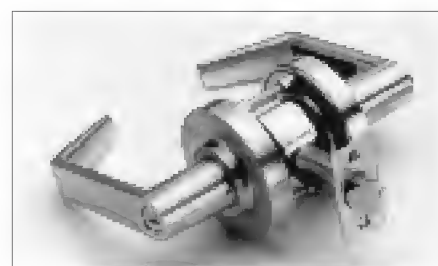
For the heavy doors required for many commercial and industrial applications, Zero offers a cam lift hinge designed for doors up to 500 pounds, with each pair rated at 300 pounds. Manufactured from high precision "investment" stainless steel casting, the hinge provides a 1/2" drop over a rotation of 180 degrees.

**For FREE Information
Circle 404 on Rapid Reply**

Marks USA Grade 2 Key-In-Lever

Marks USA introduces its 70 Series locksets, the first ANSI Grade 2 cylindrical key-in-lever lock with the clutch. The clutch feature substantially reduces the abuse seen by conventional lever sets. In addition, its spring loaded roses provide a no-droop life of over 1,000,000 cycles.

It is available with five or six pin conventional cylinders as well as six or seven pin best size IC cores. The locks are available in 12 functions and three finishes. Most other



manufacturer's cylinders can be used with these locks by using the Marks adapter tailpieces. The lock is UL listed for three hour fire rating.

**For FREE Information
Circle 405 on Rapid Reply**

Dor-O-Matic

Now in our 45th year, Dor-O-Matic continues to be the leading supplier of panic exit devices to the major door manufacturers across the nation. From traditional crossbar concealed vertical rod devices and rim devices to "school quality" touchbars, Dor-O-Matic manufactures a quality exit device for a multitude of applications.

**For FREE Information
Circle 406 on Rapid Reply**



NATIONAL AUTO LOCK SERVICE, INC.

National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.

www.laserkey.com

IC Core Products By KSP

Allowing for easy servicing of Best, Arrow and Falcon style IC systems, KSP offers a variety of supplies and equipment.

KSP is known as a maker of quality lock hardware. For more than ten years, they have been making replacement interchangeable cores for Best type locks and compatibles. KSP manufactures cores, housings and related servicing tools at their factory in Worcester, Massachusetts.



by
Sal Dulcamaro

Company History

KSP's parent company, Killeen Machine Tool Co. Inc., was started in the 1930's. To this day, it is still one of the largest metal stamping companies in New England.

Norman Doucet took over as president of Killeen Machine Tool Co. in 1980, and remains as the company's CEO and owner. It was not until 1983

that Mr. Doucet would even begin to contemplate manufacturing locks.

In 1983, Norman Doucet got together with Doug Maston (who he had known for many years). At the suggestion of Doug Maston, he considered a venture into lock manufacturing. Specifically, they decided they would manufacture high quality Best compatible cores and housings.

In 1985, Killeen Security Products (KSP) was launched with Doug Maston running the operation as vice president. After all, Doug was the one with experience in the security hardware industry. Mr. Maston's previous background in the security field included nineteen years with Ilco and three years with ESP.

Today, KSP makes and sells a full line of interchangeable core products designed to be compatible with Best, Arrow and Falcon brand IC products.



1. Manufacturing Best compatible locks, KSP makes a variety of IC tools and products.

The Product Line

Photograph one shows a representative sampling of the types of IC products made by KSP. Besides the variety of cores and housings, they make and sell most of the servicing tools you would need to work with IC cylinders.



2. A variety of mortise cylinder housings.

The selection of mortise cylinder housings made by KSP are shown in photograph two. From left to right, they include the #306 housing which is a 1-1/4" mortise cylinder. It can be used with 6 pin cores. Next is the #307 housing which is 1-3/8" in length and is used with 6 or 7 pin cores. The two housings to the right have tapered heads to resist wrenching and for use where a shorter cylinder is required (such as Adams Rite locks on narrow

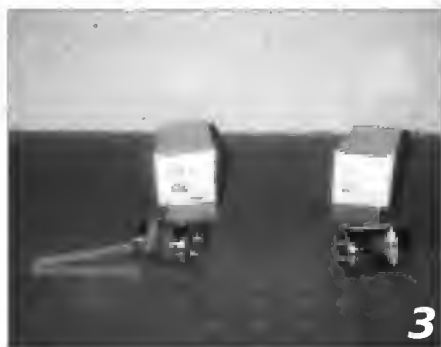
rim cylinders are shown in photograph three. The #308-6 housing (to the left) accepts only a 6 pin core, while the #308 housing (to the right) will accept either a 6 or 7 pin core.

Photograph four shows interchangeable cores made by KSP.

They are available in two lengths. The #206 is a 6 pin core and the #207 is a 7 pin core. They are available in any of the following Best keyways: A, B, C, D, E, F, G, H, J, K, L, M

and Q. They even come in the Arrow 1C and 1D keyways. KSP also makes cores in their own unique keyway which is identified as: KMT300.

The housings can be purchased in any of the following finishes: 3, 4, 10, 10B, 26 and 26D. The cores are only available in two of those finishes: 4 and 26D. For mortise cylinders, the available cams are: #600 Standard, #601 Adams Rite, #602 Clover, #602-S Sargent, and #602-L Schlage-L.



3. Rim cylinders are also part of KSP's line.



4. KSP offers both 6 and 7 pin cores in a variety of Best keyways.

Servicing Tools

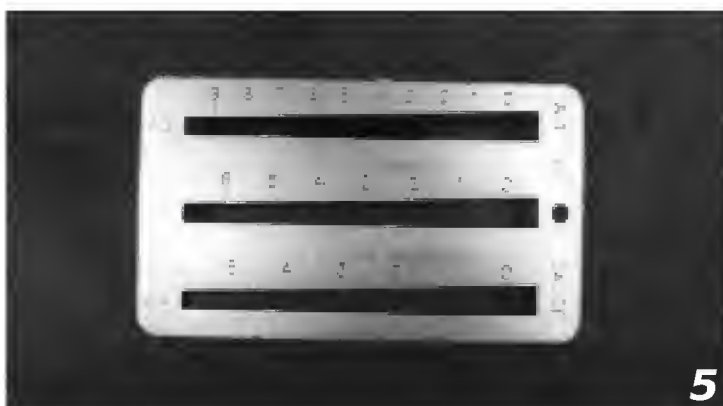
Photograph five shows a key decoder gauge (part #611). It can be used to decode keys in A2, A3 or A4 systems. It is made from stamped sheet metal, and it can be used to quickly decode Best or compatible keys.

A housing wrench (part #609) is shown in photograph six. It is used to install mortise cylinder type IC housings into mortise locksets before the cores are installed. There are two drilled holes in the end of the tool to accept the drive pins inside the housing opening. Photograph seven shows the housing wrench inserted into the housing. The drive pins caught in the holes of the wrench prevent the cam from flopping around as the mortise cylinder is threaded in place.

A capping block and punch (part #606) can be seen in photograph eight. They can be used for assembling both 6 or 7 pin cores. After each pin chamber is filled with tumblers and a spring, a cap tops the stack. Then the punch is inserted into the hole in the capping block, and tapped to seat the cap in the cylinder. (See photograph 9.)

The ejector punch (part #610) enters the small diameter access holes at the bottom end of the core and is pushed through the full length of a pin chamber to drive out the pin stack in order to disassemble the core for rekeying or decoding. (See photograph 10.)





5

5. Gauge used for measuring Best A2, A3 and A4 system keys.

The cam staking tool (part #608) is used for attaching the appropriate cams to mortise cylinder housings. (See photograph 11.) To use, the drive pins are first loaded into the cam staking tool. After a small spacer is set on top of the pins, the housing is placed over the top of the loaded tool and the large spacer and the proper cam are attached. Then the only thing

If the cam has to be changed to work with another brand mortise lockset, the staked end of the drive pins can be ground or drilled away to disassemble the

left to do is to stake the cam onto the drive pins for a permanent assembly. (See photograph 12.)

housing. KSP also supplies spare drive pins and cams to reassemble the housing for different applications.

For additional information about KSP interchangeable core products, contact your locksmith wholesaler.



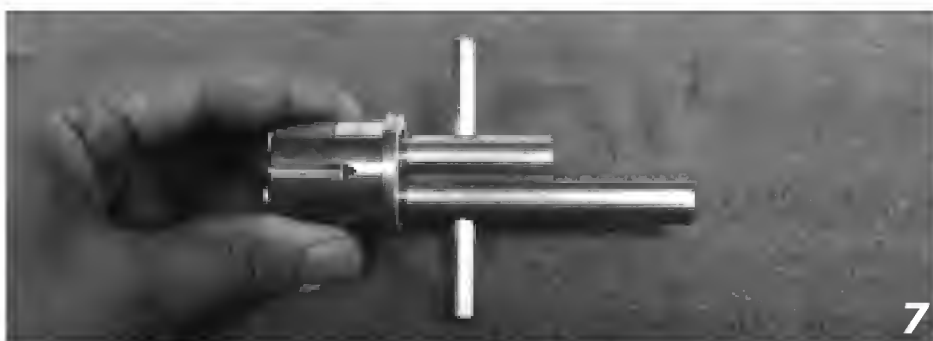
6

6. This odd looking tool is a housing wrench, used for fast, easy installation of the cylinder housings.



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7. Place the tool into the cylinder housing and you're ready for installation.



8. For easy pinning, this capping block and punch are used.

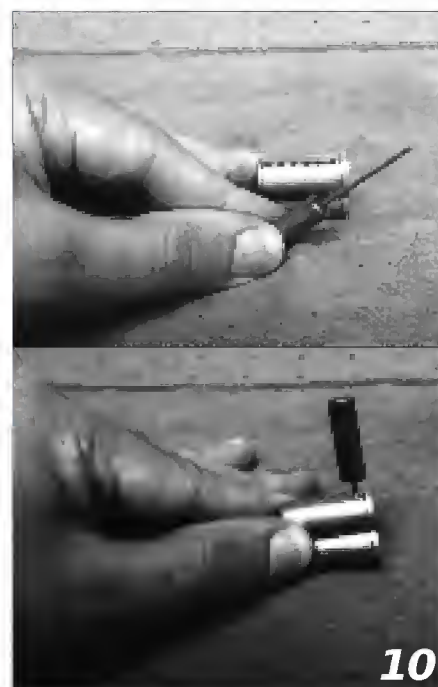


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9. After placing the pins and springs into the cylinder, it is placed in the block and capped using the punch.



10. The ejector punch is inserted in through the bottom of the cylinder and used to drive out or eject the pins for rekeying the lock.

On The Cover...

For the door, our cover includes the new and improved, plus an exciting mixture of electronic hardware and key control. Starting left in clockwise rotation we have electric transfer hinges by Architectural Control Systems, Inc., The Patriot key control system by Medeco, Schlages new Grade 2 AL lever, and NT Monarch Hardware's DE 18 delay egress system.



11. The cam staking tool and cam components ready for assembly.



12. The drive pins are loaded into the cam staking tool and loaded into the cylinder housing. The cam is then staked onto the drive pins.

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ASSA introduced its next generation high security lock cylinder at the 1995 ALOA convention. The new patent pending design is called the Twin V-10, and it both maintains and builds on the principles used in the current Twin 6000 series locks.

For those unfamiliar, the ASSA high security lock cylinder is essentially two locking devices in one. It is *both* a pin tumbler and a sidebar lock. There are truly two separate locking components within the lock cylinder, and likewise there are two separate keys within the operating key that unlock an ASSA cylinder.

Operating Principles

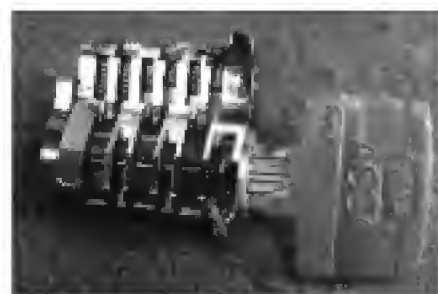
Photograph one shows a cutaway view of the ASSA Twin V-10 lock cylinder. At first glance, it might look very much like an ordinary pin tumbler lock. There

are separate tumblers for the sidebar and there are separate key cuts that operate the sidebar tumblers.

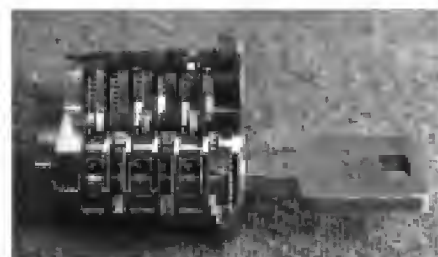
The plug was partially rotated in photograph two to give just the slightest glimpse of the tumblers that operate the sidebar. There are five such tumblers (called side pins) in each ASSA lock cylinder that interact with the sidebar. The side pins can be seen in each of the five half moon openings along side the length of the key. They can be seen slightly more clearly with the plug out of the lock body in photograph three.

The Side Pins

Photograph four shows all five side pins removed from the lock plug. The side pins for a V-10 cylinder have a "V" or angle shaped bottom surface. There are only two types of side pins: left hand or right hand. All but one of



1. A cutaway view of the new ASSA Twin V-10 lock cylinder.



2. Six pin tumblers and five side pins comprise the locking system on this lock.



3. The side pins are slightly more visible along side of the key.



4. Side pin, seen here, have a V or angled bottom, and are either left hand or right hand.

ASSA difference. Because the side pins have no depth variation, the varied depths of the key cuts are coordinated to varied depths (in each tumbler position) on the sidebar itself. The five protrusions at various heights on the sidebar are called the sidebar legs, and they fit into the slots or "gates" in the side pins.

There are literally thousands of different sidebar configurations assigned to specific ASSA lock dealers

Going Turbo With The ASSA Twin V-10

Sal reviews ASSA's
new Twin V-10
keying system.

by Sal Dulcamaro

are six pin chambers with top pins (or drivers) topped by tumbler springs in each chamber. While it is partly a pin tumbler lock, it is hardly ordinary. Just in the pin tumbler component alone, there are features that make it more pick resistant than a standard pin tumbler lock.

First, there are six pins as opposed to the standard of five pins found in most commercial locks. Second, the top pins (or drivers) are spool type pins which are designed for greater pick resistance. Countermillings, in five of the six chambers of the lock plug, interact with the spool pins to greatly increase pick resistance.

Looking back at photograph one, there is a sidebar that runs along the left side of the plug. The sidebar component (as mentioned earlier) is completely independent of the pin tumbler portion of the lock. There are

the pins is left handed. The second side pin (counting from the left) is right handed. The hand of the pin is determined by which direction the angled tip of the pin points. The left handed pins have their tips pointing to the left or the back of the plug. The tip of the right handed pin points to the right or face of the plug.

The five empty pin chambers (where the side pins move up and down) can be seen along the bottom of the lock plug. The ASSA sidebar, just to the right of the lock plug, is unique compared to side bars of other locks that use a sidebar locking mechanism. Most sidebar locks use tumblers of varying lengths or key depth positions to interact with a standard one-for-all sidebar. The varied depth tumblers match specific varied depth key cuts.

Photograph five illustrates the



5. Unlike most sidebar locks, the side pins do not vary in length. Instead, the sidebar configuration must fit the "gates" of the side pins.



6. On the left, a side pin for the Twin 6000 series lock; the right, is the new Twin V-10 side pin.



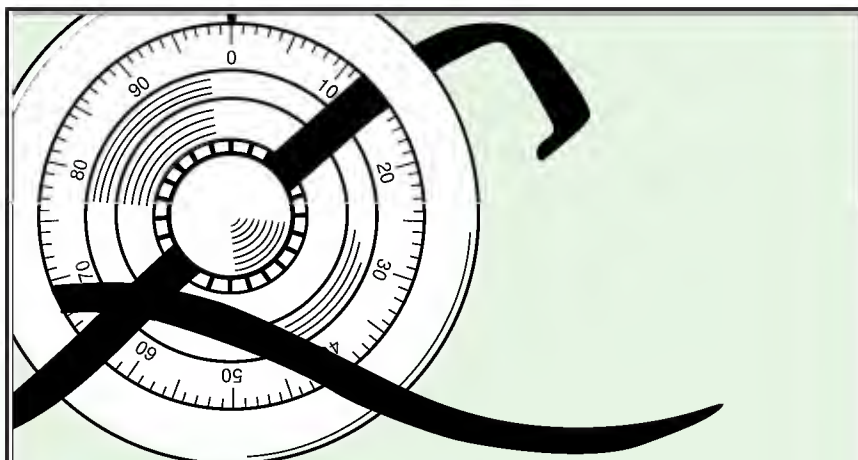
7. The difference in the key contact area of the Twin 6000 and Twin V-10 is apparent in this photograph.

for their exclusive use.

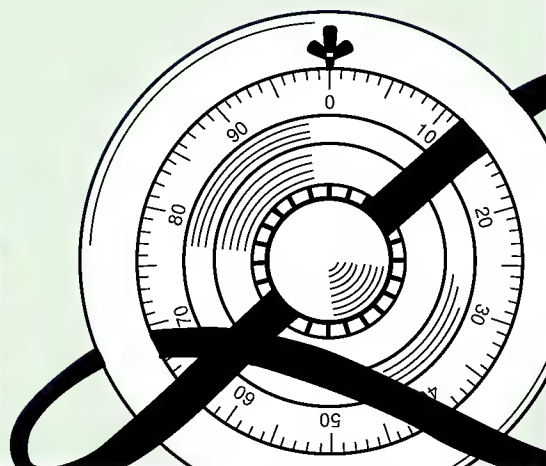
With five different height positions and five separate side pins, their are 3,125 theoretical sidebar codes. In the older Twin 6000 series locks, only 2,800 side codes were considered useable. Because the sidebar is reversible, inverting the sidebar allows an ASSA dealer a second side code. That effectively made 1,400 pairs of side codes with the Twin 6000. (1,400 times 2 equals 2,800)

V-10 Capabilities

Although the Twin V-10 is based on the same sidebar design as the Twin 6000, the new design side pins have dramatically enhanced the side code capabilities. Photograph six shows an old and a new style side pin for comparison. At the left is a standard side pin for the Twin 6000 series locks. On the right side is a left handed side pin for a Twin V-10 lock cylinder.



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8. The V-10 side pin seated on the key.

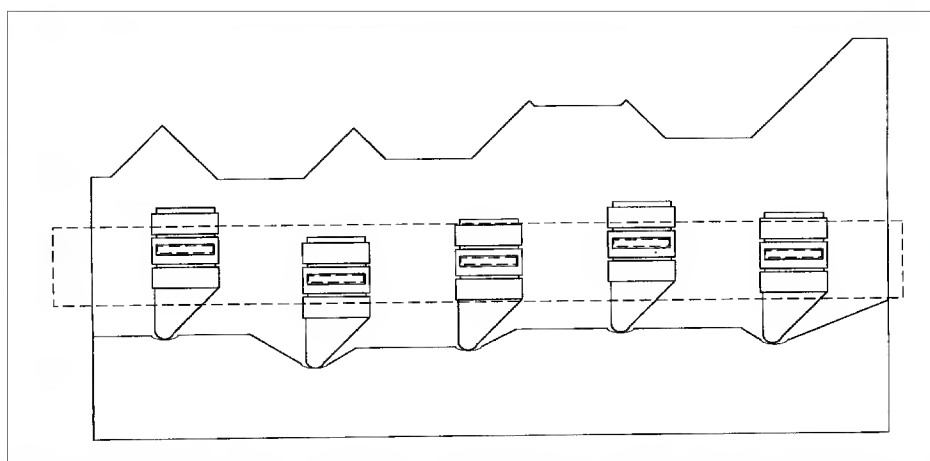


9. A top view of the V-10 key shows the two-keys-in-one concept.

The original design pin is somewhat spool-shaped. There is a deep groove in the center and two sets of shallow grooves above and below the center groove. The deep groove is where one of the sidebar legs fits when a proper key is used on the ASSA lock. The shallow grooves are essentially false "gates" designed for increased pick resistance.

The V-10 side pin also has a deep groove in the center with shallow grooves above and below to increase pick resistance. Although the functional features of the old and new side pins are very similar, the physical shapes of the two are quite different.

Photograph seven shows the bottom surfaces of the pins that actually make physical contact with the key. The old pin has a broad and



10. The unique design of the V-10 allows master keying through the use of the side pins.

flat bottom surface while the newer pin has a somewhat "V" shaped bottom surface. The tip of that pin is seated in one of the side cuts of the key in photograph eight.

Masterkeying On The Sidebar

Photograph nine shows a top view of a cut Twin V-10 key. If you look carefully, you can see what was earlier referred to as two keys in one. There are two complete and independent sets of key cuts on the ASSA key. It almost looks like two separate keys were sandwiched together.

The pin tumbler cuts are along the top surface of the key blade and are cut onto the key just as any other pin tumbler key is cut. The sidebar tumbler cuts are milled into the key along the side and are called the side cuts. The particular pattern of cuts on a particular key is referred to as the side code.

Part of the patent protection that gives ASSA its high level of key control is the legal restriction on cutting the side cuts into the key. A locksmith dealer can only make pin tumbler cuts into the key. The side cuts can *only* be cut at the factory.

Specific side codes are contractually assigned to individual locksmith dealers, preventing any but the selling dealer from making duplicate keys for their customers.

In the original Twin 6000 design, masterkeying was limited to the pin tumbler component of the lock. Even so, that was not much of a limitation. With bottom pin sizes from 1 to 9 and six pin chambers, ASSA's ability to single step master key provided a theoretical maximum of change keys totaling 262,144 (eight to the sixth power) under a single top master key. Larger than virtually any other commercial brand lock.

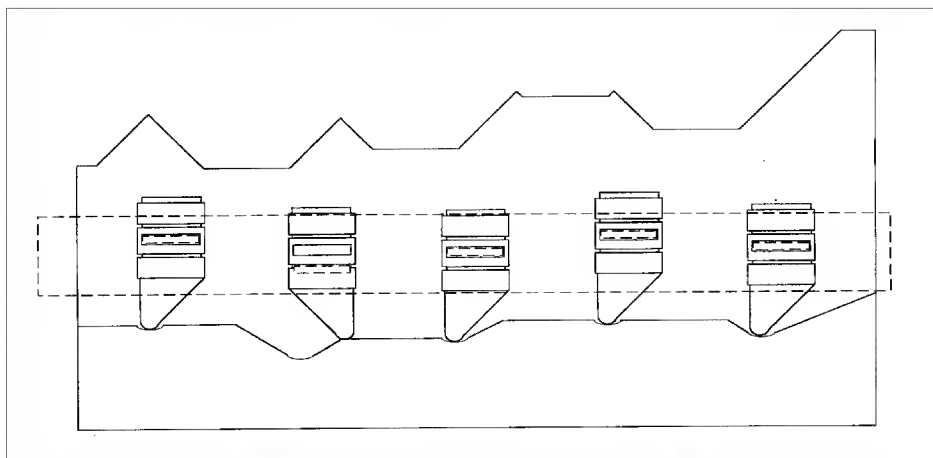
Illustration 10 helps to illustrate how the angled side pins of the new Twin V-10 design knock all previous masterkeying standards out of the ballpark. The sidebar and sidebar legs are represented by dotted lines. The slots in the side pins line up behind the sidebar legs, so the sidebar is unlocked.

With a similarly configured sidebar in a Twin 6000 cylinder, the wide flat bottom surface of the side pins would require equally wide flats milled into the key to seat the pins properly. That



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11. Replacing even one incorrect side pin makes it impossible for the sidebar to operate.

would (and does) limit a Twin 6000 cylinder to two possible side codes per reversible sidebar configuration. This Twin V-10 setting has all left handed side pins (angled tip points to the left or back of the plug) with matching side cuts for left handed pins. If one of the side pins is replaced with a right handed pin, as in illustration 11, the side cut for that position (the second pin from the left) will no longer raise the pin to the correct position to unlock the sidebar. If the cut in that

position was on the right side instead of the left, it would be correctly mated to that side pin pattern.

Keyways And Sectional Keyways

The Twin 6000 series locks allow exclusive keyways to locksmiths, which means that other ASSA lock dealers cannot duplicate their keys because they have their own exclusive keyways. Strictly speaking, these exclusive side codes are not actually keyways. One Twin 6000 key would

physically enter the keyway of a lock with a non-matching side code.

Because two separate patents protect both the completely blank ASSA key and the key blank with side millings, it has nearly the same effect as a physical keyway. A locksmith can't legally cut the side millings into a key, and a lock will not operate without the side millings. For all practical purposes, it is as good not being able to insert the key into the keyway. The patents to protect against key duplication on the V-10 will have a similar effect, only much more so.

The basic V-10 dealer setup (in most cases) will be nearly identical to that of a Twin 6000 dealer. An exclusive reversible sidebar will give the dealer two possible sidebar configurations. A stock cylinder (with the pin tumbler component uncoded) will probably come with five left handed side pins. The older Twin 6000 cylinders come with five standard non-handed side pins.

Most V-10 key blanks would then be coded for left handed side pins. If right handed side pins would be intentionally or accidentally installed in place of the left handed pins, the side code milled into the key would be

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unable to operate the lock. The combination of left and right handed side pins will be used for specially designed master key systems.

When an ordinary pin tumbler lock is unable to sustain a large enough number of change keys, a master key system can sometimes be greatly expanded by using sectional keyways. For example, a ten pin increment lock with six pin chambers could sustain 4,096 theoretical change keys using a two step standard progression. If there were four separate sectional keyways and a master key blank that entered all of them, a factor of four would create a master key system capable of 16,384 change keys.

The Twin V-10 locks with left and right handed side pins will simulate sectional keyways to effectively allow additional master keying capabilities on the sidebar component of the lock. The magnitude and size of master key systems that can be generated with the V-10 have been unheard of until now. There are five side pin positions with two possible settings (left or right) per position. Computing all the mathematical possibilities of left and right side pin arrangements, you get 32 possible "sectional keyways" (two to the fifth power). By multiplying 32 times the master keying theoretical limit of the pin tumbler component of the ASSA lock (262,144), you get the staggering number of eight million, three hundred eighty-eight thousand, six hundred and eight theoretical change keys under one top master key.

It is unlikely that any one job would require anywhere near eight million change keys. On very complicated master key systems with peculiar or multiple access levels for many different doors, however, sometimes large numbers of change keys cannot be used within the system.

In an extremely large master key system, assigning mid-level master keys to large numbers of employees to give them single key access to many unrelated doors can wipe out huge blocks of change keys in the system. With the enormous capabilities of a V-10 system, you could arrange some of the most convoluted of access arrangements having multiple single key access to different sets of door locks. Of course you would also lose large blocks of key changes in the V-10 system. Since you start out with so many more possible change keys, however, losing the use of fairly large groups of change keys has a less significant impact.

CYLECT 2000 Locksmith Program

The introduction of the Twin V-10 will give ASSA V-10 dealers the newest patent for a restricted key high security lock. The 17 year utility patents will cover both the key blanks and the interaction of the key and cylinder. Although the Twin 6000 still has a few years left on its patents, V-10 provides a marketing edge to an ASSA dealer. The V-10 dealer can offer almost two decades of patent protection on key duplication. To become a Twin V-10 dealer, there are certain purchasing requirements. They are as follows:

PURCHASE REQUIREMENTS

Level	Description	New	Existing Beta/Gamma
C2L	Local (e.g. citywide) exclusivity	\$1500	\$500
C2R	Regional (e.g. statewide) exclusivity	3500	1500
C2N	National exclusivity	10,000	5000


Existing Beta and Gamma dealers have the option of staying with the Twin 6000 hardware that they currently sell. They will still retain

their current sidebars. Because of their status as existing Beta/ Gamma dealers, they will be able to upgrade to C2 dealers with discounted initial purchases. Depending on the level, they will save between 50 to 67 percent over what a new dealer for the ASSA Twin V-10 hardware will invest. Existing dealers that upgrade will have the identical territory and same sidebar that they use for the Twin 6000. They will only need new key blanks, side pins and cylinder plugs.

Backwards Compatibility

The design of the Twin V-10 was very deliberate. When a company seeks a new patent to upgrade a current product, it is often the case that the dealers that sell and service that product will be required to learn a completely new and different technology. Usually an entirely new service kit is required because the new product line isn't compatible with any of the old parts and accessories. ASSA's V-10 technology bucks that trend.

There is an exceptionally high level of backward compatibility. The ASSA Twin 6000 dealer should have very little trouble adjusting to the new V-10 technology. With the minor exception of the new design side pins, servicing procedures of the older Twin 6000 and the new Twin V-10 are virtually identical. The only servicing parts that you will have to add to your existing tumbler kit are left and right handed side pins.

It seems rare to see engineers resort to simplicity of design and ease of use. The ASSA engineers did just that with the Twin V-10, and that's always a welcome change of pace. For additional information on the ASSA Twin V-10, contact: ASSA High Security Locks, 103-00 Foster Avenue, Brooklyn, NY 11236. Phone: (718) 927-2772. 



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Profits That Lay At Your Feet

by Thomas J. Russel

Often overlooked by the locksmith, floor closer replacement and adjustment is an untapped potential for income.

Floor closers may be one of the more complex products to install in the hardware industry, but they're also one of the sturdiest and most dependable. They are not specified nearly as often as they should be because of lack of knowledge about them or an understanding of the proper use and advantages of floor closers.

Because it is a big, rugged mechanism - with parts machined for maximum durability and dependability - the concealed floor closer is a "long life performer." It is fly anchored in the floor, making it virtually vandal-proof, as well as impervious to weather, cleaning chemicals and hard daily use. It's important, too, that the securing screws for a floor closer are in shear, rather than in constant horizontal tension, so there is far less likelihood that these screws will loosen - even in hard or abusive use.

Contrast that with the stresses and strains on screws securing butt hinges. In addition to being a less stressful application, the concealed floor closer is out of harm's way; it's also largely out of sight - a notable advantage in contemporary architecture and interior design.

The sheer strength of the concealed floor closer can't be over-emphasized. It is strong enough to provide a positive dead stop capability. That is, it ensures that a door can open only so far - and no further. The closer mechanism itself prevents the door from striking walls, and prevents "racking" of the door and its valuable hardware.

One of the primary advantages of a floor closer is that it not only controls

the door, it hangs it as well. The closer itself bears all of the weight of the door, relieving the side pivots and hinges of undue stress and strain. And, for absolute control of a door, concealed floor closers can be augmented with intermediate pivots and/or an overhead stop.

Doors are most commonly hung on mortise hinges and controlled by surface closers. When hinges fail - as they may over an extended period of time, or with heavy use or abuse - they are frequently replaced with continuous hinges covering the entire height of the door. In this case, the frame must be absolutely plumb; continuous hinges are not adjustable.

Over the past several years, there has been considerable use of continuous hinges for retrofit applications. They are also specified for new installations as well. A floor closer installation with pivots is a better choice. Shims supplied with the floor closer may be used to adjust to uneven floor conditions, and pivots are also adjustable.

Floor closers also offer a big advantage in meeting the requirements of the Americans with Disabilities Act (ADA). A floor closer at 90 degrees of opening is 100 percent more efficient than a surface closer in having enough force to close and latch. Under the ADA, an interior door can have no more than five pounds of opening resistance. The opening force for exterior doors is "reserved" for designation by local authorities; however, in many locations 8-1/2 pounds has been established as the resistance level. An exterior door surface closer might

offer 12 pounds opening resistance, unless it's designed to meet the ADA requirements, in which the closing power can be reduced. A floor closer provides more power to close the door with the 8-1/2 pounds of opening resistance. Since the door is hung directly on the spindle of the floor closer, the ratio of closing force to opening force offers greater efficiency than other types of closers.

Because the floor closer mechanism is designed to be anchored in a concrete floor, its internal workings can be - and are - made as strong as necessary. There is no need to compromise strength or durability in the interest of aesthetics, since the only visible part of the closer is an attractive floor plate. The floor closer provides better control for a wide range of door designs and sizes.

The floor closer is clearly the most effective method of door control, but it costs considerably more than a surface closer and installation is more complex. The floor and the door have to be prepared to receive the closer and pivots, and are generally designed into and completed as part of new construction. However, as a locksmith, you may be called upon to deal with them, and shouldn't overlook them as a source of revenue. Include them in a regular maintenance program. You are very likely to find them in Class A office buildings and other structures where aesthetics are important and high quality products are used.

Floor closers generally have a very long life span. However, they too need adjustment from time to time. They are similar to surface closers in

that adjustments can be made to the sweep and latch speeds through valves located in the top of the closer. In fact, it's even easier than adjusting surface closers, since you don't need a ladder.

You should also make certain the closer is level and the arm is tight on the spindle. Shims are available which snap on the spindle between the arm bearing washer and arm knuckle to raise the door if it drags on the floor or threshold.

The closer generally needs to be replaced if the door does not close. Manufacturers do not recommend attempting to repair floor closers, since special tools are needed for safety. There are repair specialists and the manufacturer can provide the name of one in your area.

Removing the closer is not difficult. The pin is removed from most pivots by unscrewing the knuckle caps and pushing the pin out. Loosen the closer arm screw and lift the door off the closer spindle. (Keep in mind that one of the major uses of floor closers is to handle very heavy doors.) The floor plate can then be removed, providing access to the closer.

When the new or repaired closer is replaced, it's important to align the center line of the top pivot pin with the center line of the closer spindle. Use a plumb line to ensure correct alignment.

Most floor closers are installed in the offset position, allowing for a snug weather fit tightly around the door. Essentially, the door is closing in a "pocket." When offset, the closer is single-acting; it can only swing on one direction.

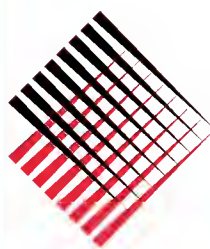
The principle advantages of center-hung applications are the full concealment of the arm and pivot and doors can be double acting.

Offset Hung Floor Closers

A 3/4" offset is the most common application. In this case, the pivot point is 3/4" off the face of the door, and 3/4" from the edge of the door.

A 1-1/2" offset is also available. It is used most often with doors which require a wide throw to clear projecting trim, or for doors with decorative panels which add thickness. It also offers a solution for doors with exit devices, which may require the wider throw to meet ADA opening clear width specifications.

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The pivot point is placed 1-1/2" off the face of the door. The offset at both top and bottom must match so that the door will operate properly. Offset hung doors are always single acting.

Center Hung Floor Closers

The pivot point for center hung floor closers is on the center line of the bottom of the door's thickness. It is usually located at a point 2-3/4" from the door jamb. This dimension may vary, depending on special situations or because of the model of the floor closer. Center hung doors may be either single or double acting. Double acting doors must be center hung.

Independently Hung Floor Closers

Independently hung floor closers control a door which is hung on hinges or pivots rather than directly on the floor closer. This type of installation is used only on single acting doors such as pocket doors.

Independently hung floor closers have the added advantage of being able to be removed completely by one

person, while still leaving the door able to function. The door continues to swing easily and will latch securely shut when closed. This closer model greatly simplifies routine maintenance, as it allows timely servicing of door control mechanisms without inconveniencing personnel working in the building.

General Characteristics

Characteristics that apply to concealed floor closers for exterior doors also apply to interior doors; however, a shallow depth closer is often used, particularly in multi-story buildings, since the slab is not as deep in upper floors.

The interior floor closer is not generally subject to the air pressure



1. A typical cement case and stabilizer.

conditions affecting the exterior closer. However, the building's interior stack pressures can occasionally create a condition of negative pressure. The supplier should have anticipated such pressure conditions and selected a model which facilitates on-site spring adjustments. The floor closer will function far better than a surface closer in a building subject to changing air pressure conditions and be less likely to allow doors to swing open on their own, but you should be alert to the condition when servicing or adjusting a closer.

When swinging open or shut, the interior floor closer should perform with a minimum of force from the user. If not, an adjustment is needed. The same smooth action you expect in a heavier model used for exterior applications should be present in the interior model. While some people may tolerate a measure of balkiness in a lower quality exterior closer on a building entrance they use infrequently, they will be less tolerant on a door used repeatedly during the day.

When fully open, interior floor closers should stop exactly where positioned. The positive-stop and backcheck features available on some models assure full-time protection of doors and door hardware, and less risk of racking a door.

Both offset and center hung door closers offer basically the same features.

Backcheck adds resistance during the opening cycle. This feature slows the movement of the door at about 70 degrees of opening to prevent damage to walls and hardware trim should the door be thrown open violently. Backcheck is either mechanical -

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2. The floor door closer comes in offset or center hung styles, and includes a variety of functions.

which is nonadjustable - or hydraulic. Adjustable hydraulic backcheck permits a range of intensity which may be adjusted according to installation requirements.

Hheavy duty floor closers also have a built-in dead stop feature which dictates the maximum opening degree of the door. Thin slab (shallow depth) closers may open to a full 180 degrees; however, an auxiliary door stop is required.

Closing and latch speeds are controlled by different adjusting valves located in the body of the closer. Closing speed begins at the maximum open position of the door and continues to approximately 10 degrees of the closed position. The latch speed range begins at this point. The closing speed may be adjusted to move slowly to 10 degrees, and the latch speed increased to ensure positive latching. If preferred, the closing speed might be adjusted to move quickly, then slow abruptly in the latch range in order to close the door quietly.

Hold-open is an optional feature which is available by mechanical or hydraulic means. Mechanical hold-open holds the door at a specific point; hydraulic hold-open holds the door at any point past approximately 75 degrees.

Delayed action causes the door to start to close very slowly from the fully open position to about 80 degrees. Then, the normal closing cycle begins. It's a simple means of allowing someone a little extra time to move through the opening.

Floor Closer Components

A typical floor closer installation consists of a cement case, closer body,

cover plates bottom arm and top pivot.

The cement case is the hollow box imbedded into the concrete floor. The closer body is inserted into the case. The depth of the case is from 2" to about 4-1/2", depending on the model of the floor closer. When installed in the floor, the case is inserted into a cavity and then "grouted" into place below the finished floor. (See photograph 1.)

The closer body is made of large and durable components. It

includes a cast iron or steel case which houses the spring, plunger, hydraulic fluid and the spindle which projects vertically above the floor. When the spindle turns, the spring is compressed. When released, the plunger forces hydraulic fluid through the valves, thus controlling the closing speed of the door. (See photograph 2.)

The cover plate is a finished flat plate which covers the top of the closer body and has holes in it for the spindle to protrude and access to the control valves. Floor closers used with thresholds do not use cover plates. Instead, the threshold is prepared



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3. The top offset pivot (top) is attached to the top of the door and the top jamb. In an offset application an intermediate pivot hinge (bottom) is often included.



with the appropriate holes.

The bottom arm is mortised into the bottom of the door and attaches to the closer spindle. When the door is opened, the spindle is rotated, setting the control mechanism in motion. The direct connection of the arm and

spindle contributes to the high efficiency of the floor closer.

The top pivot does not carry any vertical weight load. Its function is to carry the horizontal thrust load when the door is opened and to keep the door aligned. This piece is attached to the top of the door and the top jamb. Offset hung doors may use an additional intermediate pivot which performs the same function, but is located along the

vertical door jamb. (See photograph 3.)

The size, weight, function and location of the door are determining factors in deciding which floor closer to use. Entrance doors are usually considered high traffic and, since they open out, typically also experience wind and dampness. Interior doors are usually considered medium or low traffic doors and are protected from the elements. A range of floor closers is available for door weights up to 1,500 pounds. Other models are designed for smaller, much lighter

doors. (See photograph 4.)

Floor closers installed in fire door locations must be offset hung and single acting. They must be non-hold-open and the pivots and bottom arms must be made of ferrous material. A fire door may be held open by an electromagnetic holder-release device that is controlled by a smoke detector or fire alarm system.

Cold weather fluid (CWF) is a special hydraulic oil designed to maintain viscosity at low temperatures. Sealed units containing cold weather fluid are advisable to prevent materials such as water, snow and ice from entering the cement case and, thus, affecting proper operation.

A properly installed floor closer will last a long time, but the opportunity is still there to maintain and/or replace



4. A shallow depth floor closer, typically used on the upper, thin cement slabs of a building.

them. Remember to look down as well as up when you're passing through a doorway. The chance for some extra income may be at your feet.

The author is Marketing Manager of Yale Security, Inc. **TNL**

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Measuring For Profits

by Tom Seroogy

There's more to door closer service than waiting for the phone to ring - there's marketing.

Ever a proponent of cashing in on opportunity, I'd like to share with you a simple practice for creating more income - door closer installation, replacement and adjustment. Actually it's not so much the working with the door closer that I want to talk about as much as it is the technique for landing more door closer work.

For most locksmiths, door closer work is pretty mundane. And, for those that wait for the phone to ring to do this work, you're right. As I take a more proactive role in landing my work, however, I tend to grab it at every opportunity.

The technique is simple. Before leaving each job site, do a site survey of the doors and hardware. Aside from checking the operation of the locking and latching hardware, also check the door closer and its operation.

Now, I can see many of you shaking your heads, saying, "I already do that!" Again, even this seems pretty senseless; that is, unless you're armed with two special and inexpensive tools - a door gauge and a little bit of information. And, as the door gauge is fairly simple to describe, let's first take a look at the information.

The Information

What locksmiths tend to forget, and customers never realize, is that with every commercial door that is installed, there are laws that govern

the installation, operation and maintenance of that door. (See photograph 1.) Now, I'm not talking about the laws of nature, here. I'm talking about national, state and local standards and codes dealing with egress and ingress, standards dealing with fire doors, fire exits, direction of opening, clear width of opening, means of latching, opening and closing force, etc.

At the heart of most of these standards lie two juxtaposed standards: NFPA 101 Life Safety Code and the ADA. Still, while both are written to enhance and preserve the lives of people, the results often conflict.

The NFPA, for example, requires that egress (exiting) shall not exceed 15 lbf (pounds of force) to release the latch, 30 lbf to set the door in motion, and 15 lbf to open the door to the minimum required width. These standards, of course, are designed for personal safety in the event of a fire.

The Americans with Disabilities Act, unfortunately, is much more vague. When first implemented, ANSI standard A117.1-1986 was the accepted ADA standard. Under this standard, exterior hinged doors were allowed a maximum opening force of 8.5 lbf (37.4 N). Interior doors are allowed only 5 lbf for opening. Later amendments to ADA have removed any recommendation for the opening

force on exterior doors, and have left that decision in the hands of the Authority Having Jurisdiction (AHJ); although 8.5 lbf is still widely accepted. As such, the discrepancy between NFPA 101 and ADA is apparent.

NFPA standards are applied to any door, with a closer, that serves as a means of egress. ADA, on the other hand, is applied to any public doorway, and makes a clear distinction between interior and exterior doors.

Also apparent is the difference in required maximum opening forces. Designed to protect the public from fire, NFPA has adopted a



1. All door installations in this country are governed by various codes and laws that locksmiths can take advantage of.

Continued on page 32-DHI

Continued from page 30-DHI

much higher opening force than the ADA. NFPA also further breaks down the door opening into three distinct motions or operations: Releasing the latch, setting the door in motion, and opening the door to its required full open width.

With its origins in removing barriers for the disabled, ADA is based on a much different criterion, producing much different results. Notice that there is no distinction between setting a door in motion and opening the door to its minimum required width. Most noteworthy is that the opening force for exterior doors has been reserved for the AHJ. As noted, while the ANSI 8.5 lbf is generally accepted, there is still room for much variation from one governing district to the next. In fact, most commercial doors I have inspected exceed ANSI 117.1 recommendations, but are usually well within NFPA standards.

For the building inhabitant, as well as the locksmith, both ADA and NFPA standards should play a vital role in the way we approach a door. Part of our role as locksmith is the concern for the security of the client with respect to door hardware and its operation. While most locksmiths accept the responsibility for recommending and applying physical security, many forget or refuse to get involved with making sure the client's doors are meeting local, state and federal law. In my opinion, acting in such a manner is not only throwing money out the door, it borders on professional negligence.

Now, back to the issue at hand. Because of the conflicts in applying ADA and NFPA standards to any given situation, a locksmith has only

three options: One, don't get involved. Two, apply the more stringent of the two standards. Or, three, contact the AHJ for their reading and application of door standards. Obviously, knowing and understanding the local standards as applied by the AHJ is ideal. This is

the information with which a locksmith must be armed. Granted, it may take some time to contact and speak with the local AHJ, but this should be considered a benefit with an expected return.

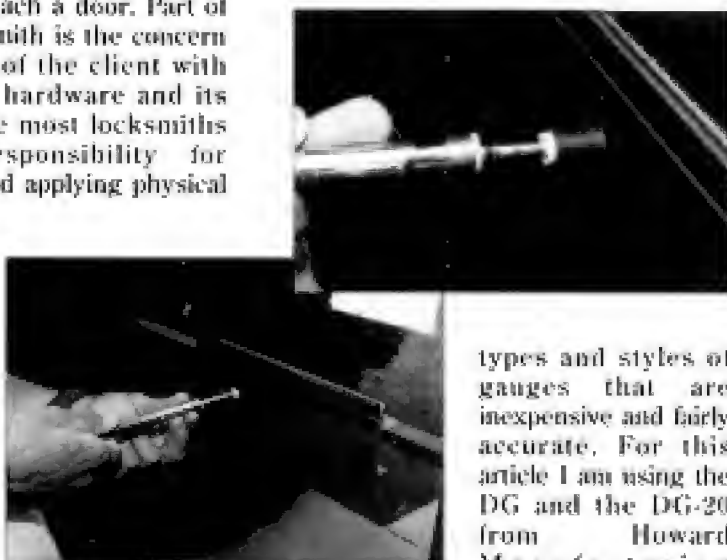
The Tool

Armed with the right information, let's now look at the tools we're going to use to check our opening forces - the gauges. Now, it isn't necessary to run out and purchase an expensive set of gauges.

On the other hand, don't run out and purchase a sportsman's fish scale from K-Mart and think you've got the problem licked. Instead, there are several companies that make various



2. HMC'S DPG-20 (top) and DPG can accurately gauge the opening pressures of your customer's doors.



3. Place the gauge on the door and push it open. The rubber marker ring will indicate the opening pressure at its highest point.

types and styles of gauges that are inexpensive and fairly accurate. For this article I am using the DG and the DG-20 from Howard Manufacturing Company (HMC), out of Littleton, Colorado.

Both gauges are spring loaded with the DPG measuring forces of 0 to 35 pounds and the DPG-20 measuring forces of 0 to 20 pounds. Either unit will work for most door requirements and cost \$15 each. (See photograph 2.)

To use the gauges, move the rubber marking ring to the zero position. Place the rubber foot of a gauge in line with the handle or latching device, approximately 30" from the hinge edge of the door (on 36" doors). (It should be noted that NFPA makes the measurement at the latch stile. For consistency and accuracy, ask the AHJ at what point they take the measurement.) Gently push the door open, making sure that the thrust is square to the swing of the door. Be careful not to angle or pitch the gauge while applying pressure. Take your reading. (See photograph 3.)

The Technique

Armed with the proper information, we can now apply a technique that, when practiced, will add a few dollars to any bottom line. The technique is this: Before leaving any commercial customer, inform your contact that you would like to survey the hardware on each door for proper operation, and to lubricate and tighten as needed. Tell them that you are also gauging each door to make sure they meet the ingress/egress standards of the AHJ.

Then, listing each door, write down your findings for each. Include a description of the hardware condition, door and frame condition, and opening and closing problems. Measure and include the opening force of each door and how they compare to the standards of the AHJ.

When complete, share the survey with the customer, pointing out any serious deficiencies and/or violations in door function or operation. Prepare a small handout on what the AHJ standards are for your area. Include a section for penalties if the customer is found in violation. Finally, ask the customer if they would like you to rectify the existing problems. In fact, suggest a long term maintenance agreement, if your business is so inclined.

Making this technique a habit for every customer you touch is sure to capture much of the overlooked income opportunities.

For a copy of the 1994 NFPA 101 Life Safety Code call (800) 344-3555. Cost is \$39.50.

TCL

Quick Tips For Staying On Top

by Ashley Rolfe

Recently, we asked Ashley Rolfe, Group Vice President Sales and Marketing for Newman Tonks, Inc., for a few suggestions on keeping the locksmith competitive in the coming years. Here are four quick tips for staying on top of the industry.

Take advantage of available information...

"Locksmiths have much greater and quicker access to information than they used to. I think you'll see the industry begin to take greater advantage of the wealth of



Ashley Rolfe, Group Vice president of Sales and Marketing for Newman Tonks, Inc.

manufacturer information and programs available to them through a variety of sources. For example, they can use manufacturers' 800 numbers to obtain catalogs, part lists, installation sheets, and other informational opportunities.

"A lot of information is becoming available on computer, too. For

example, locksmiths can order catalogs on CD-ROM."

Program participation...

"Locksmiths increasingly will see the importance of continuing education. They'll attend the ALOA show in greater numbers and participate in education programs manufacturers and others make available."

Partnering...

"Many locksmiths will find it advantageous to trade on their expertise. By partnering up with others, they can exploit services they may not be able to offer themselves."

Marketing...

"In order to survive long in business, locksmiths must become more marketing savvy. They must learn more about marketing, and how to execute it. Traditionally, locksmiths have promoted themselves with little more than a phone number in the yellow pages. They must learn to take advantage of the unlimited marketing opportunities available to them. **TL**

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HOSPITAL SECURITY With Securitron

by Jake Jakubowski

With a hospital in need of reliable traffic control, Jake installs and tests Securitron's new DK-11 touchpad.

I don't know about you, but I just love it when new products come along that are destined to make my job as a locksmith easier and, at the same time, put shekels in my pocket. It's even better when the company that makes the new product calls me up and says, in effect: "Jake, I'm going to send you one of our new touchpads. I want you to kick the tires, slam the doors, look under the hood and drive it around the block a couple of times. Then, I want you to give me an evaluation of what you found out about the thing!"

When Mark Henderson, of Securitron, called me to discuss field-testing the DK-11 Digital Keypad System, he didn't quite put it that way, but he did give me carte blanche to put the DK-11 through it's paces from installation, to programming, to extreme use conditions. (See *photograph 1.*) And, as luck would have it, I just happened to have a place to put the DK-11 that would meet all the criteria for a good solid, field-test and evaluation.

In the November, 1994 issue of *The National Locksmith* (Page 50), I wrote an article on installing two Securitron TSB-3 Touch Sense Bars on the emergency room entrance to a hospital that I service. The idea of that



1. The DK-11 touchpad by Securitron.



2. Suffering from the effects of abuse, this lever and electric strike were now being replaced.

installation, along with two Securitron 62 Magnalocks and a DK-25P Touch Pad was to secure the entrance against unauthorized entry by hangers-on that had caused the emergency room staff to start calling the area "The Knife and Gun Club!" As fate, or luck, would have it, there is another entrance to the emergency area from the admitting office that is not 50' away from the double doors that I secured with the Touch Sense Bars and Magnalocks

Unlike the paramedics entrance, the entrance from the admitting office area did not need to have as high a degree of security built in. The purpose being traffic control rather than security against unauthorized access. This door had previously been secured with a storeroom function lever set and an electric strike. (See *photograph 2.*) That arrangement allowed patients and staff to be "buzzed" through from the admitting office and the lever set allowed free egress from the emergency room corridor side. The problem was that so much stress was being put on the lever set by folks impatient to get in, that several replacements a year were necessary.

The hospital wanted to know if something could be done similar
Continued on page 36-DHI

Continued from page 34-DHI

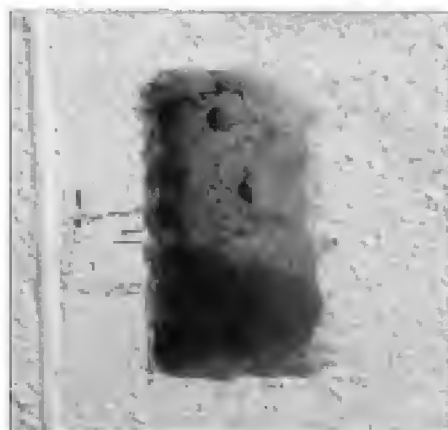
to what had been done to the paramedics entrance. I recommended a Touch Sense Bar, a 32 Magnalock and a DK-25P with a pull handle on the admitting side of the door. And, although it would be a redundancy, I thought that a Securitron PB3ER Push Button Release would be a backup release in case anything happened to the TSB-3, which, in view of the



3. The PB3ER emergency push button release served as a backup in case of an emergency.



4. A pull handle is installed in place of the lever set.



5. Cutting a hole in this concrete block was necessary for installing the keypad.

performance of the TSB-3's on the paramedics entrance, wasn't likely. (See photograph 3.) At any rate, the hospital was agreeable to the change and before I could place my order, Mark Henderson called me about the DK-11.

The DK-11 Digital Entry Keypad is a multi-user, self-contained, indoor entry keypad. It is a one piece digital keypad that is designed to control any electric or electronic lock up to 5 amps.

It has multiple code capabilities and all codes and keypad functions are programmable strictly from the keypad. What that means is, there is no separate CPU board as there is with the DK-25P! In addition, the DK-11 has two signaling LED's that visually indicate the entry status of the door and also act as programming prompts when the keypad is being setup or changed.

The DK-11 handles up to four entry codes using any combination of digits from 0 to 9. With a fixed programming mode, one changeable code employs a user entered master code to program up to four different operating codes for the electric lock chosen. The DK-11 uses a nonvolatile EEPROM memory to store codes so it doesn't "forget" the codes in the event of a power failure. For security against random access by trying to figure out the code, the DK-11 shuts down for 30 seconds if 16 wrong digits are entered into the keypad.

In addition, you can set the operation of the lock from 1 to 99 seconds. And, for electric strike or remote door opening, the DK-11 has a REX (Request-to-Exit) function which operates the lock as if an entry code had been used.

The DK-11 is compact, self-

contained, functional and carries a suggested list price - are you ready for this - of only \$140! Now, that's economical. I should mention that the DK-11 is designed for medium to light security and should be used on interior doors only; unless you utilize the optional spring loaded weather cover which will make the DK-11 weather resistant but not weatherproof.

OK! I've gotten all the propaganda out of the way. So, how easily does the DK-11 install? And, even more importantly, how does it perform? Well, this old boy's jes' gotta tell you that I give the DK-11 high marks in both areas. Now, in all honesty, I haven't followed it's long-term performance, yet. And I only installed this one in July of this year. But, based on the performance of other Securitron products that I have installed over the years, I truly do not expect to encounter any major problems with this one.



6. The template for marking the holes for the magnetic lock.



7. Lock mounted to door frame.

Photograph four shows the lever set removed and a pull handle installed on the "outside" of the door. This gives the patients, and staff, a means of pulling the door open when the code has been entered or the lock has been remotely deactivated.

Photograph five shows the hole being cut in the concrete block wall to accept the DK-11's mounting box (part #DK-11 Wall Mount Box).

Photograph six shows the template for the mounting holes of the Magnalock M32/24 and photograph seven shows the M32/24 mounted on the door header. In photograph eight you can see how I have used wire mold to channel the wiring from the various components of the system I installed into the ceiling and to the power source and remote unlocking station behind the reception area (not seen in this photograph). Photograph nine is of Securitron's 24VDC power supply which incorporates an integral battery



8. Wire mold was used to connect the various components of this system.

charging system, assuring constant power to the system in the event of a power failure. [NOTE: Even though this system was installed with a battery backup and the hospital has its own emergency power station, I still wired the system in a Fail-Safe configuration. In the highly unlikely event of a total



9. The power supply just before installation.

power failure, the door would be unlocked, allowing unimpeded egress. This complies with NFPA 101 and most Life Safety jurisdictions that I am familiar with.]

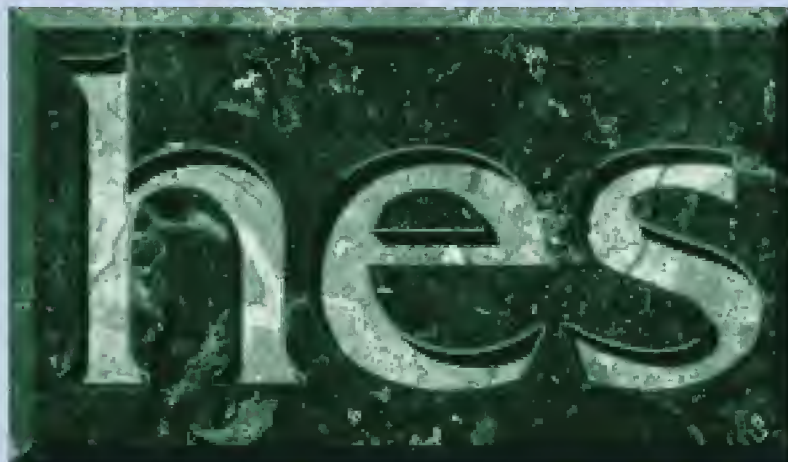
The TSB-3 Touch Sense Bar has no moving parts and works by "sensing" the human touch - even through clothing. When you touch the bar anywhere along its metal surface, it automatically releases the Magnalock, electric strike or other device it is coupled with. And, it's tough! One of the prototype models was put down in the parking lot at Securitron and run over with a car! The metal bar bent, but the mounting blocks held and the "victim" still functioned after this accident.

In photograph 10 you can notice, at the lower left hand side of the TSB-3, an armored loop leading from the bottom edge of the TSB-3 to a wire mold junction box on the door jamb. That



10. An armored cable was used to make the connection between the door frame and the TBS-3 Touch Sense Bar.

loop is supplied with the TSB-3 and carries the wiring from the door to the jamb for connection with the rest of the system. Photograph 11 shows the completed installation from the inside of the door and photograph 12 shows the completed installation from the outside of the door. The remote "buzzer" and the power supply are not shown in those photographs.



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This entire installation took me about five hours to complete - mainly because this is one busy door! The TSB-3, the Magnalock and the various bells, whistles, lights and switches

went in without any problems and, for the most part, I have covered their installation step-by-step in other articles. So, I'm not going to dwell on that aspect of it here.

However, I would like you to know that even if you're a novice in the access control business, the installation instructions supplied by Securitron make your job easier than you might expect. I mean, the



11. The complete installed system from inside the door.

directions are clear, concise and readable. And, just in case you get yourself in a jam - like I have on occasion - Securitron has a toll-free hotline, manned by a knowledgeable staff who can talk you through your difficulty.

Anyway, back to the DK-11.

How hard is it to install? In my opinion, not very! Of course, installing any type of a box or switch in a solid, concrete-filled


block wall is never much fun, but that's not the fault of the DK-11. I give the DK-11 high marks on ease of installation and simplicity of wiring. I did not find the DK-11 any more difficult to "program" than the DK-20's, DK-20+ or the DK-25P's that I have installed in the past. And, from the acceptance of the keypad by the hospital personnel, I would have to say it is "user friendly." All-in-all, I



12. The complete installed system from outside the door.

believe that the DK-11 represents another solid hit for the folks at Securitron.

As far as the long-term "staying power" of the DK-11 under actual conditions? That's something that remains to be evaluated.

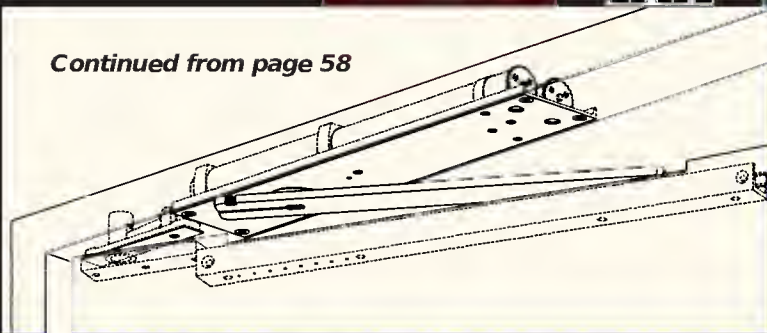
For more information on the DK-11 or other Securitron products contact your favorite distributor or call Securitron at (800) MAG-LOCK. 



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2. This example of an overhead concealed closer, uses an arm applying leverage to the door along the track.

abusive applications begin this backcheck function much earlier in the swing.

3. Through the long closing arc, the closer should maintain a uniform, reasonable (main) speed. Normal time to latch the door from 90° should be about 5 to 7 seconds, evenly divided between general and latch speed, with a smooth transition.

4. During closing, a gradual transition prevents an abrupt change from the main speed control to the final latching arc.

5. The latching arc allows the door to close quietly and firmly.

How Does a Closer Work?

As a controlled door is opened, the spring of the door closer is compressed, which builds up the power to close the door. Normally, more opening force would be required as the spring compression increased. However, some closers are designed so their arm position changes as the door is opened. On one design, a track roller applies the closer power to the door along a path as the door moves, increasing the door's leverage. This offsets the growing spring compression and makes the door easier to open. To close the door, spring power is applied through the arm system. Because the spring has been compressed, its power at first is very high. As the door closest the spring expands and gradually loses its power. (See illustration 2.) On a closer that has variable arm geometry, the track roller moves farther out on the door to give the closer increased leverage that compensates for the lost power. When the door finally must be closed against the latch, the leverage is the greatest.

The speed of the door in either direction is controlled by regulated hydraulic circuits in the closer body.

Selecting the Right Closer

There are several considerations that help in selecting the right closer

for a specific application. When specifying a closer, look at the following areas:

Concealed or Surface-Mounted? - Door closers are available in styles designed for concealed or surface mounting. In

choosing a closer style for a particular application, consider the type of door being controlled, frame conditions,

aesthetic requirements, and control features needed.

Closers may be concealed in the head frame over the door where they are out of sight and entirely out of people's way. They cannot be harmed by scrub water, cleaning chemicals or floor dirt, and they are protected from airborne contaminants like dust. While their concealed location protects them from vandalism and tampering, they are easy to reach for regulation without removing any parts. Closers are available to fit frame sections as narrow as 1-3/4". Another

DOOR CLOSERS

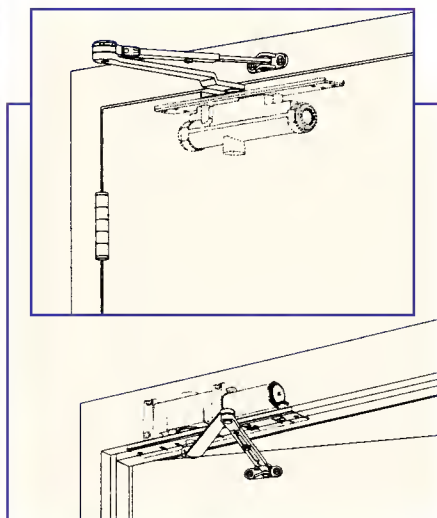


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3. Closers can be concealed in the top jamb or within the door, keeping them out of sight and safe from external elements.

place to conceal a closer is within the door itself, where it also will be hidden and protected. Units are available to fit interior doors of common sizes and cost little more than surface-applied closers. (See illustration 3.)

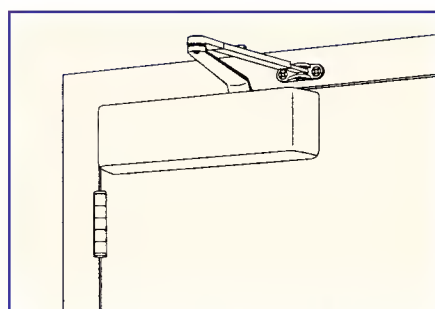
Surface-mounted closers are often used for accessibility or where aesthetic considerations do not require concealed mounting. (See illustration 4.) For best appearance, closers on doors along a corridor are usually located on the room side of the doors, so they are out of the line of sight from the corridor. On exterior doors, closers should be placed on the inside for appearance and to shelter them from the elements.

Heavy-duty closers may be required where hard usage or special

service conditions exist. They should always be used on schools or public buildings that may be subject to hard usage; on exterior doors; on doors subject to draft, winds, or air pressure differentials; and on high-frequency doors, such as those on department stores, malls or mixed-use tenancies.

Which Arm System? - Closers are available with double or single lever arm systems, and there are several versions of each type to suit many different applications.

Double lever arm closers can provide control for interior or exterior doors under difficult conditions. A parallel-arm system is a type of double lever arm that has the main arm parallel to the face of the closed door. Some functions available in double lever arm systems include regular, hold-open, fusible link, extra-duty, and combination closer/ stop/ holder.



4. A familiar sight to all locksmith is the surface mounted closer.

Single lever arm (track) closers can be used on interior or sheltered exterior doors. The hold-open function in a single lever arm system is

provided by either the track or, in the case of life safety closer/ holders, a cylinder assembly. In addition to standard configuration, single lever arm closers are available in double egress and swing-free designs.

High Security Applications - For any door to be an effective barrier, it must be fully closed and locked. High security closers are designed and constructed to meet these needs for applications such as correctional facilities, public use buildings, schools, financial institutions, government installations, corporate high security areas or wherever there is a need to minimize opportunities for damage or abuse of the door hardware.

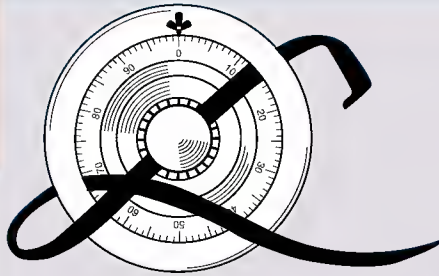
They can be surface-mounted if all components and fasteners are constructed to minimize the possibility of unauthorized removal or tampering. A concealed mounting, with the closer inside the head frame and the track and arm in the top of the door virtually eliminates tampering and vandalism opportunities.

Materials that are used in high security closers have withstood the test of time, including cast iron cylinders, forged steel pistons, temperature-stable fluid, double heat-treated pinions, and forged steel arms. Tamper-resistant fasteners are also a necessity.

Accommodating Special Needs - To comply with life safety codes requiring that doors close automatically to protect individuals from fire and smoke without sacrificing the convenience of a door that opens and remains open without spring pressure, a swing-free arm may be used, in conjunction with a closer that incorporates a smoke detector.

Under normal conditions, the swing-free arm is disengaged from the closer control, allowing the doors to be opened and closed from 0° to 180° with no spring pressure. If the fire detection system goes into alarm, the swing-free arm is reengaged by the closer and automatically closes the door. The swing-free function is reset by simply pushing the door open. Because it makes it easier for patients, staff or those with disabilities to pass through the doorway, and also lets the door stand open at any desired position, this type of arrangement is ideal for applications such as patient room doors.

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Continued from page 60

To accommodate the needs of those with disabilities, the 1990 Americans with Disabilities Act (ADA) and ANSI Standard A117.1 describe maximum opening force limitations for certain non-fire rated doors. Be aware that any manual closer, including those certified by BHMA to conform to ANSI Standard A156.4, that is selected, installed and adjusted based on ADA or other reduced opening force requirements may not provide sufficient power to reliably close and latch a door.

Many manufacturers now offer closers designed with reduced opening force to meet these requirements without affecting closing power. Double lever arm systems require significantly lower average opening forces than single lever arm (track type) while also providing superior latching power. Check with the manufacturer to be sure you are getting the right closer to meet this special combination of needs.

Also helpful in meeting ADA requirements is using a wider door. This not only provides easier access but also offers the user more leverage, reducing the opening force required.

Powered closer systems are another way to provide easy access for people with disabilities and resolve the problem of reducing the opening force while maintaining adequate closing force. A typical powered system is pneumatically assisted to automatically open a door slowly when actuated, usually by an adjacent pushbutton.

Fire Door Concerns - The Life Safety Code (NFPA 101) requires fire and smoke barrier doors to be closed and latched securely in the event of a fire. However, many such doors must remain open for convenience during general use. Special door closer/holder units are available with single-point hold open and the ability to automatically close a fire or smoke barrier door on a signal from either a built-in or companion detector. Many of these units release whenever an electrical current is interrupted, either from a detection signal or other cause, allowing the door to close. When the hold-open function is not engaged, they generally function as a standard closer.

Special Cylinder Functions -

Several types of special cylinder functions can be ordered from closer manufacturers to accommodate specific requirements. One such function is delayed action, a special hydraulic circuit that provides additional time to pass through the door. Generally available on double lever arm closers, these typically include a regulating screw that controls the closing speed from maximum opening through an arc of approximately 75°. After that point, the normal main speed resumes control to close the door.

Advanced variable backcheck is a useful option with some high-security closers for potentially abusive applications. It begins cushioning the opening swing at about 45° instead of the usual 75°.

Another special cylinder function is hold-open bypass, sometimes known as multi-point. This feature does not allow hold-open to take effect within a selected range of door swing. (See illustration 5.)

The hydraulic fluid inside a closer may be affected by temperature changes, changing its viscosity and affecting the operation of the closer. As the temperature rises, the fluid thins out, causing the door to close more rapidly. As the temperature decreases, the fluid thickens and causes the door to close very slowly. To combat this and eliminate the need

pays to check the specifications of the hydraulic fluid used in a closer.

Door Considerations

When specifying a closer, the door details that should be considered to assure a successful installation

How Far Should the Door Open? - It is best to let the door swing as far as it can swing freely. Some closers may be mounted in different locations for different degrees of opening.

Use a mechanical stop when a door cannot swing 180 degrees, or at the selected hold open point of a double lever arm system. The mechanical stop can be mounted on the floor, wall, overhead, or built into the closer arm.

The closer should be positioned to where backcheck takes place well in advance of the stop position, to cushion the opening swing and prevent door and frame damage from an abrupt stop.

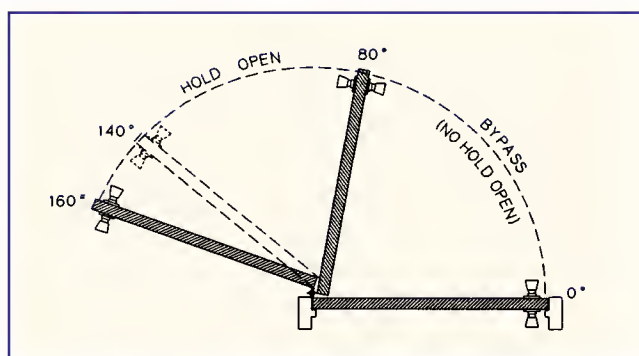
What Size is the Door? - The width of the door is the main consideration in determining correct closer size; that is its minimum spring power, hence the closing force it generates. Refer to the closer manufacturer's catalog for the proper closer use for a specific door size. If a door is of exceptional height, weight, or special construction, or if drafts and air pressure differentials exist, consider using a closer with more power.

Door thickness may also be a factor. A concealed-in-the-door closer should not be used in a hollow metal door less than 1-1/2" thick or a wood door under 1-3/4" thick. Exceptionally thick doors can affect hinge and pivot centers enough to also affect closer functions and geometry.

Also important to nearly every closer installation is the depth of the door's top rail. Narrow top rails may require plates to successfully mount the closer. An insufficient top rail in a flush, hollow, or composition-filled door may make a concealed-in-the-door installation impractical.

Other Mechanical Considerations

Some door closer designs are handed and must be ordered in the proper hand for the door. The hand of the closer is the same as that of the



5. Varying degrees of function and versatility can be achieved by the type of arm and/or cylinder used. Sometimes known as the multi-point cylinder, the hold-open bypass cylinder is just one of many variations in cylinder design and function.

for seasonal adjustments, some closer manufacturers use a special fluid that has a constant viscosity within a wide temperature range, typically +120° F to -30° F. In climates where wide temperature range are expected, it

door except for corner bracket installations, which require a closer handed opposite the hand of the door. Remember, when approaching a door from the push side, if hinged on the left, it is a left-hand door; if hinged on the right, it is a right-hand door. For purposes of handing closers, right-hand reverse bevel and left hand are identical. Also, left-hand reverse bevel and right hand are identical.

Occasionally, the physical limitations of the selected closer may not provide the desired functions or degree of opening. Standard templates may interfere with other hardware. In these situations, contact the closer manufacturer for application engineering assistance. Custom installation templates or products may be available to fit your application.

Many types of plates, brackets, adapters, and parallel arm shoes are available from closer manufacturers to simplify installation under a variety of frame and door conditions. Corner brackets, once the only satisfactory way to install a closer on the push side of a door, still meet some special requirements not satisfied by other mountings. A plate is now commonly

used to lower the mounting height of a closer to meet special conditions or adapt a closer to a door or frame surface that is not adequate for normal mounting patterns. If in doubt, consult the manufacturer for assistance with special mounting needs.

Most closers come with a fastener pack, but there are a few points to consider. When attaching closers to hollow core doors, through bolts are recommended to minimize crushing or squeezing the door. Through bolting can also provide a very strong mechanical connection for potentially abusive applications. The knurled and rounded head of a through bolt grips the door firmly and resists tampering. Door thickness must be specified when through bolts are used, because their barrel extends completely through the door. For high security applications, special machine screws that cannot be removed with ordinary tools may also be available from the closer manufacturer.

A Word About Finishes

Closers are generally available in finishes to match or complement standard architectural finishes, as well as custom painted finishes to match

most decor. Powder coating is an environmentally friendly process that provides a high-quality, chip-resistant finish that protects against the effects of weathering and corrosion. Painted finishes may be applied after powder coating to provide a custom appearance without compromising corrosion resistance. Typically, most visible components such as covers, arms, fasteners, and finish plates are available in plated finishes. For installations that require an even higher level of protection against weathering, some manufacturers offer additional rust-inhibiting finishes.

Manufacturers' catalogs generally provide suggested architectural specifications that can be a useful guide or checklist when writing closer specifications. Carefully considering the door parameters and the closer's role in protecting the opening while serving the needs of door users will assure a long, trouble-free closer life.

*The author is National Accounts Manager for LCN Closers, Part of Worldwide Ingersoll-Rand. **IRL***



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BUSINESS BRIEFS



HPC is proud to announce the **7th** winner in their monthly Codemax™ drawing. HPC has awarded a Codemax™ computerized key machine to **Richard Zanoth** of **Dick's Lock & Key in Silver Lake, Minnesota** on **September 1st**. It was purchased through **Kenco Supply Company in Omaha, Nebraska**. HPC will be awarding a Codemax™ to a lucky locksmith every month through February 1996. To qualify, locksmiths simply need to purchase any 1200 Series Key Machine and send in their registration card along with a copy of their distributor invoice to HPC. Once this is done, they will automatically be entered in the contest. Entries will remain eligible until the conclusion of the contest. A total of over \$47,000 will be awarded. There are still **five** more chances to win.

Lockmasters® is now offering a new advanced three day GSA Red label course. This course, designed for the experienced technician, uses the latest information on specifications, locks and entry techniques from our standard five day GSA Training course.

For details contact Lockmasters' Education Department at (800) 654-0637 or write to: Lockmasters® Inc., 5085 Danville Rd., Nicholasville, KY 40356-9531.

DORMA Door Controls, Inc. was certified to ISO 9001 in May, 1995. The company had earned its initial ISO 9002 certification in April, 1992, in the process becoming the first U.S. builders' hardware

manufacturer to become certified to the international quality assurance standard.

Carla Beyer has joined ASI • Alarm Suppliers as its newest Sales and Customer Service Specialist. Carla previously spent four years as the Outside Northwest Sales Manager for Intellisense.



Sentex Systems, Inc. is pleased to announce that Doug Crawford has joined Sentex as Sales manager for the Southwestern U.S., which includes Texas, Oklahoma, New Mexico, Colorado, Louisiana, Arkansas, Missouri, Kansas, Iowa, and Nebraska. Doug will be working out of an office located near Oklahoma City and may be reached at 405-878-8932.



American Lock & Supply, Inc. has announced the promotion of Marsha Stewart to Business Development Manager, and the hiring of Ken Kuck for the newly created position of Marketing Programs Manager.

As Business Development Manager, Marsha Stewart is responsible for researching new business opportunities.

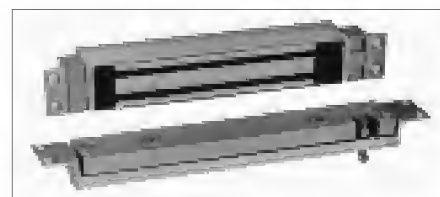
In the new position of Marketing Programs Manager, Ken Kuck will oversee the development and implementation of customer programs.

William McGinty has joined Security Door Controls (SDC) as National Sales Manager. McGinty will be responsible for coordinating the sales efforts between SDC's business partners and their customers and for developing new channels of distribution.



Locksoft, Incorporated, supplier of computer solutions for the lock industry, is pleased to announce the Locksoft home page on the World Wide Web. Web browsers may now visit <http://webmall.com/locksoft/locksoft.htm> to check an on-line catalog and price list and even download demo versions of the popular programs.

Combining the best in fail-safe performance with the most advanced features in design, the SDC 1560 Series EM-lock, Micro/ Shear and Hi/ Shear electromagnetic locks, containing a patented locking design with field adjustment capabilities, is now offered by JLM Wholesale. For more information, contact JLM at (800) 522-2940 or (810) 628-6440 or fax us at (800) 782-1160 or (810) 628-6733.



Accredited Lock Supply announces their setting up of an E Mail address on the Internet. The address is: acclock@village.ios.com The Internet is accessible from all major services, such as America On Line, Compuserve, Prodigy, etc., as well as the Internet itself. Customers can use this mail address for messages, orders or other communications to the company.

JLM

TECHNITIPS

Helpful hints from fellow locksmiths

**Send in your
tips and win.**

HOW TO ENTER

Simply send in your tip about how to do any aspect of locksmithing. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Write your tip down and send it to: **Jake Jakubowski, Technitips Editor, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107 or send your tips via E-mail to the E-mail address posted in the upper right hand corner of this page.** Remember, tips submitted to other industry publications will not be eligible. So get busy and send in your tips today. You may win cash or merchandise. At the end of the year, we choose winners for many major prizes. Wouldn't you like to be a prizewinner in 1995? Enter today! It's easier than you think.

BEST TIP OF THE MONTH

If your tip is chosen as the best tip of the month, not only do you win the All-Lock Foreign Auto Service Kits, but you also automatically qualify to win one of the many excellent year end prizes!

EVERY TIP PUBLISHED WINS

Yes, every tip published wins a prize. If your tip is printed, you'll win \$25 in Locksmith Bucks. You can use these bucks to purchase any books or merchandise from **The National Locksmith**. Plus, every tip published will win a copy of the Technitip Handbook. (Please remember to include your complete mailing address - we cannot mail prizes to P.O. Boxes.)



by
Jake Jakubowski

America Online: NATL LOCK

Use the above address if you are on AOL.

Internet: natllock@aol.com

Use the Internet address if you are not on AOL.

These Prizes Awarded Each Month!

- All-Lock Foreign Auto Service Kits - Worth Over \$225!
- Strattec Pinning Kit and Jacket
- American Lock & Supply \$50 Merchandise Certificate
- HPC Pistolpick S&G 4440 Safe Deposit Box Lock
- Silca Rubberhead Keyblanks (100 Blanks)
- Pro-Lok PK15 Professional Lock Pick Set
- Sieveking Products EZ-Pull GM Wheel Puller
- A-1 Security Mfg. Quickpull
- Major Mfg. CAK Cylinder Access Kit

Submit your tip and win!

I want to thank every tipster that has taken the time to send me a tip this year, even if I may not have been able to use it. I appreciate the time they took to put their ideas on paper or fire up their computers and E Mail me a tip. And, if I didn't use one of your tips - send me another. That might be the one that wins you a really great prize. I mean to tell ya' - y'all got nothin' to lose an' a whole lot to gain.

Unless you totally ignore this ole boy's column every month, you'll know that over the last year and a half, the prize structure has changed dramatically. The folks at All-Lock, Strattec, American Lock and Supply, HPC, Silca, Pro-Lok, Sieveking Products, A-1 Security and Major Manufacturing have all either up-graded the monthly prizes they contribute, continued to support the column with prizes or have just "joined up" this past year. With - are you ready for this? - Sargent & Greenleaf joining us this month! S&G will be giving away one 4440 safety deposit lock each month.

Then, there's the folks from Auto Security Products, Curtis, Belsaw, DeWalt, Framon, Hayman Safe Co., and RBL Publications, have joined our regular year-end prize contributors to make 1995 one great

year for Technitip winners!

To every one of those folks, I want to say: "THANKS!"

Back in March, of this year - just to keep you from gettin' bored - I instituted the GRAB-BAG prizes. Those are products that have been given to me by manufacturers or distributors for various reasons - and which I, in turn, pass on to tipsters on a random basis. Beginning this month, the grab-bag prizes will become a regular feature of the Technitips column! Which means, in addition to the regular monthly prizes (the ones listed in the header of the column) several grab-bag prizes will be awarded each month.

The only Rules about the grab-bag prizes are: There's just no telling what a grab-bag prize winner might receive. It could be anything from a pack of face caps, to a padlock, to a panic bar or a lockset. Whatever comes out of the grab-bag. And, grab-bag prizes are only awarded to tipsters who do not win one of the regular monthly prizes.

Now, if you actually need a further reason for sending me your tip, try this on for size: One tipster sent me a tip for a "new" tool. That tool is being picked up and being developed by a manufacturer of locksmith tools; which means the

tipster stands to make some money, in the form of royalties on the future sales of that tool. (No! I can't tell you the who, what, when or where of it until later. But! As soon as I can, I will!)

So. Why ain't y'all sittin' down and writin' a tip down to send in? Who knows? Maybe your next tip will win you a Silca Matrix Key Machine, or the tip y'all send in about a new tool could be the next one to get picked up by a manufacturer and you could be collecting royalties! At the very least: If I print your tip, I'll send you \$25 in Locksmith Bucks and a nifty (Also, beginning this month!) pair of folding pliers with knives and screwdrivers and other neat stuff in the handles.

What y'all waitin fer? Git that tip sent in now! Y'all heah?

Editor's Note: The folding pliers will take the place of the Technitip Handbook which will no longer be awarded as a prize. One more thing! Whether you send me your tip by E Mail or regular mail you must include your full name and street address! If I don't have a street address, I can't mail the prizes if you're a winner. It's as simple as that. Y'all heah?

All-Lock Foreign Auto Service Kit Winner Mazda Ignition Repair

A call came in regarding a key that was apparently jammed in the ignition of a 1990 Mazda 929. The caller had tried to remove her key from the ignition after turning the car off and she could not get the key out. Before calling me, she had called a "friend of a friend" that happened to be a locksmith and who, as it turned out, was unable to get the key out of the ignition.

After I arrived and looked the situation over, I found that the key would turn to the START position, and ACCESSORY position without any trouble. In fact, except for trying to remove the key from the ignition, the ignition seemed to function properly. Looking closely at the cylinder, I noticed that although you could shut the car off and turn the key toward the OFF/LOCK position, the key would not quite turn to the OFF index on the

face cap. I felt certain that if I could get the key to align with the index, the key would come out of the ignition as it should.

Finally, I disassembled the column shroud to see what I could find out what might be causing the problem. There is a cable that comes out of the top of the lock that moves forward and backward when the shift lever is placed in DRIVE or REVERSE. etc. The cable seemed to be functioning properly.

My next thought was that there was a bent or crushed wafer that was preventing the key from being removed from the ignition. So, I removed the ignition and then removed the plug itself. Everything seemed to be fine with the ignition. Except when I reassemble it, the key would not come out of the keyway. I even went so far as to remove the shift lever. Again, everything appeared normal. However, when I reassembled the entire mechanism - the key would be trapped.

Disassembling the shift lever again, I noticed that there is a plunger type arrangement that was not moving far enough to let the lock plug return to the OFF/LOCK index. It came very close, but did not move in quite far enough. Closer examination of the plunger showed an impression mark where it was binding in the lock. I lightly filed this mark on the plunger and reassemble the whole thing and tried the key one more time.

This time the key worked like a charm. It turned to all positions easily and came back to the full OFF/LOCK position which allowed the key to be easily removed. My customer and I both went home happy!

Bill Wessel
California

Strattec Pinning Kit And Jacket Winner Narrow Stile Lock Opening

Before I became a locksmith, I spent 25 years as a glazier and installed a whole lot of narrow-stile aluminum doors on store fronts. I'm sure that because of my previous experience, I make look at some things with just a little different perspective than many locksmiths might.

Long before I became a locksmith or knew anything about picking, impressioning or drilling lock

cylinders, I successfully used the following method to gain entry to customers businesses. One of the benefits of this method is: it will bypass cylinder guards and "undrillable" high-security mortise cylinders. And, it will do it without damaging the cylinder or the lock!

The first step is to remove the Holding Stop (One of four pieces that holds the glass in the frame) from the rail (or door stile) that is positioned immediately behind the lock. The holding stop is about a 1/4" thick and about 1/2" wide. This is easily accomplished with a thin putty knife and small hammer. Just lightly tap the putty knife between the holding stop and door stile, working it downward until the holding stop unsnaps from the stile. (See illustration 1.)

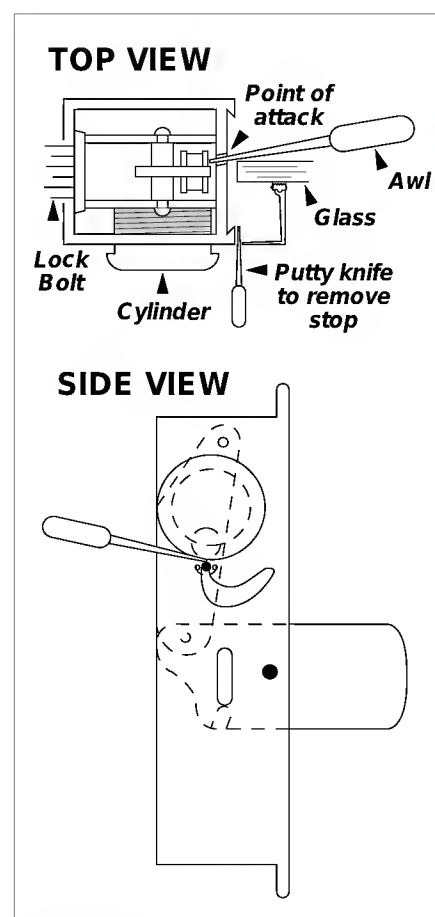


Illustration 1

Now, drill a small hole through the edge of the stile behind the lock. You want to make sure that your hole is just above the bottom of the cylinder and safely away from the edge of the glass! At this point all you have to do is take any small, stiff tool and push forward and down on the roller on the MS lock.

Voila! The lock is open. No ruined locks, distorted or broken set screws, no ruined mortise cylinders and best of all - no repairs are required on the door. Just snap the glass holding stop back in place and you're ready to rekey, replace or make a key for the cylinder.

Billy Jackson
Texas

Editor's note: Over the years, I have been shown a number of ways to "by-pass" MS style lock cylinders. Billy's method is one that I didn't know about and would like to add it to my arsenal of entry methods. Especially since there is no apparent damage to the lock, the lock cylinder or the door itself. However, I want to caution anyone who tries this method to be extremely careful of the glass and the proximity to the glass where you are drilling. Mark Bates of Mark Bates Associates, (606) 858-0811, sells a tool called a "Snake Pick" which manipulates the roller through the keyway. The Snake Pick will open an MS style lock without damage to the lock or cylinder. I suppose it all comes down to a matter of what works best for you. At any rate, Thanks, Billy.

American Lock & Supply Winner Homemade Nose Puller

I just had my first call to open a safe deposit box. And, I did not have a nose puller to do the job with. Since my customer needed the job done "today," I knew I didn't have time to order a nose puller from one of my suppliers. Since this was my first call for this type of work, I was anxious to take on the job and a little apprehensive at the same time. Especially since I did not have the "proper" tools to do the job with. You know what they say about necessity being the mother of invention. I decided to make my own nose puller!

On the way to the bank, I stopped by the hardware store and bought a 10-24 bolt, 3" long, a 10-24 wing-nut, a fender washer, a 10-24 tap and a 1" plastic plumbing coupling.

Once inside the vault, I drilled a #25 hole in the nose of the lock and tapped that hole with the 10-24 tap. (See illustration 2.) Then I assembled my custom-made nose puller as also shown in illustration two, by first placing the plastic (to keep from marring the door) coupling over the nose. Then I placed the fender washer over the nut, inserted my 3" bolt with

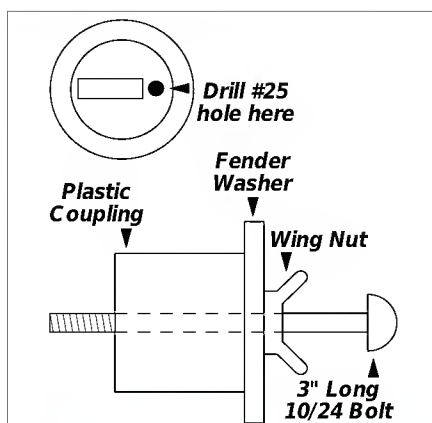


Illustration 2

the wing-nut on it and tightened it down just enough to hold everything in place. Next, I inserted and turned the guard key and began tightening down on the wing-nut of my puller. The nose came right out of the horn.

After that, it was just a matter of manipulating everything to retract the bolt. The customer even commented on how quickly I did the job and was impressed that I had "all the right tools!" My home-made nose puller cost me less than \$4!

Joe Stofferhan
Minnesota

Continued on page 74

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Continued from page 71

**HPC Pistol Pick Winner
Shearhead Bolt Extractor**

Articles and tips on removing foreign car ignitions such as Nissan and so on with those troublesome break-a-way screws have all been interesting and informative. However, I think I have found the perfect way to remove those headless bolts quickly and easily.

In addition to being a locksmith, I like to do woodworking whenever I have some spare time and it was while looking over "THE WOODWORKERS' STORE" catalog (800) 279-4441 that I found an unlikely source for a tool to back these bolts out of the collar that holds the ignition cylinder to the column. It's a reverse-tooth cutter or screw extractor (Part #92338. Retail \$12.95) that will make quick work of backing those screw out.

You do have to use a punch or other tool to "break" the headless bolts loose, but once that is done, simply chuck the extractor (I've found that the 3/8" works best for me) into your cordless drill and back those suckers right out - right now!

I've found these to be so effective that I ordered several of them to keep in my tool box.

Norris Morvant
Louisiana

**S&G 4440 Safe Deposit Box
LockWinner
Broken Key Extractor**

This tip expands on a tip that I read years ago on removing broken keys from ignitions with a spiral extractor. The tip was to remove the bow from the broken key, slide the modified key into the lock until it contacts the other part of the key and then slide your extractor down the milling and then bind the broken section and pull it out of the lock. The upper portion of the broken key serves as a guide for the extractor and also lifts the pins or wafers out of the way so they won't interfere with the removal of the tip of the key.

My tip is for keys with large millings like the 1990 Geo Prism that I recently encountered. The large .050" diameter blade of my extractor was not quite large enough to grip the millings tightly enough to allow me to remove the broken key and pull it out.

After a little thought, I put a small bend - at a 90° angle - about 1/2" from the tip of the extractor. Now when I inserted the extractor into the keyway and down the key's milling, the small bend on the end of the extractor was enough to grip the tip of the broken key and pull it out of the ignition.

John Blankenship
E Mail

**Silca Rubber Headed Key Blanks
Winner
Pull Plate Reinforcement**

As an institutional locksmith, I find it necessary to make lock and hardware repairs as strong as possible. It seems that breaking door hardware is a hobby of many of our clients.

My tip involves the strengthening of Corbin Russwin Push/Pull Plates. But! I think this idea can be applied to other manufacturers products as well. The plate in question is the type where the handle is attached to the plate with two large nuts which screw onto a threaded portion of the posts of the "pull" side of the unit.

The first thing that I do is drill the center of the posts on the handles and tap the holes to make 1/4-20 threads



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on the in the posts. Next, I measure the distance between the centers of the holes that I drilled and tapped in the posts and transfer those measurements to the push plate. I drill those marks with a 3/8" drill (which allows me a little play to compensate for screws that might be a little of center).

Next, I use the push plate as a guide to mark my drill points on the door, drill through the door at that point and mount the pull plate as required. Then, I mount the push plate and use my 1/4-20 stainless steel screws with a liberal dose of thread-locking compound on them to through-bolt the push plate and pull plate-handle to the door.

Now, our "clients" can only pull the door open, and not pull the hardware off of the door.

Vernon Kelley, CRL
New Jersey

Editor's note: In the Public Sector - as in Public Rest rooms -I have encountered the same type of problem as Vernon did with his clients. To make this type of installation as bullet-proof as possible and to keep exposed screws from tempting some bathroom bandit from vandalizing the hardware, I have used large fender washers under the nuts used to hold the handle on. The fender washers give the nut a larger gripping area and are not as likely to be pulled through the door. Of course, you have to allow for the washer to be countersunk Then the push plate is installed and covers up the nuts and washers.

**Pro-Lok PK-15 Professional Pick Set
Winner
Quick Nissan Opening**

I received a request to open a 1993 Nissan 240SX and when I arrived on site, I found that I did not have the tool recommended by the opening manual that I had for this car. I tried picking the lock without any lick and began looking for another way into the car.

This model had the rocker type lock buttons on the inside of the door panel and I decided to see if I could manipulate that button. I quickly discarded Under-The-Window tools and several others as options.

Then I pulled out a piece of hobby wire, about 1/16" thick and 36" long. (You can get this at any hobby store

and I find it comes in handy for all sorts of tricks and things.) I put a bend in the end of the wire about 1/2" deep and 1/2" wide. (See illustration 3.) Then I inserted this tool, after bending a slight radius along it's length, between the window (back edge) and the door frame.

It was then a simple matter of hooking the rocker button and pulling it toward the back of the car with my improvised tool. Because the wire is almost to short to reach the button, I used a pair of Vise-Grip pliers to grip the wire tightly and allow me to control the tip of the tool.

Actually, I found this method to be faster than the recommended method in the manual I have. The only thing you have to be careful of is not to scar the paint or trim around the window and door frame. Usually, a piece of masking tape applied at the entry point of the tool will prevent accidental scaring or scratching.

Jay Christie
N. Carolina

**Sieveking EZ-Pull GM Wheel Puller
Winner
1941 Ford Lock Repair**

A customer brought me a pair of new door locks for a 1941 Ford which he is restoring. The locks had original Briggs & Stratton keys and looked similar to the older AMC door locks, except they did not have the exposed plug release. Upon contacting Briggs & Stratton (now STRATTEC), I discovered that these locks are from a limited production run and are not listed in any of Strattec's catalogs.

At any rate, to remove the plug of these locks for rekeying, I used the key (or a pick if you don't have the key) to turn the plug left to the stop position Then, I inserted a curved shim between the plug and the cylinder at a point indicated by a dimple on the edge of the plug. I could then feel the spring-loaded retaining pin.

I pushed in on this pin which

allowed the plug to rotate past the stop, to a removal position. Then, I just pulled the plug out of the cylinder and rekeyed it just like any other wafer lock.

James Troeller
California

**A-1 Security Mfg. Quick Pull Winner
Primus Rekey Fixture**

As primarily a commercial locksmith with a number of clients on Schlage Primus - several of whom have multiple locations and regular employee turnover - I became frustrated with the sidebar and finger pin cluster while trying to do a quick rekey. As a result, I came up with a pinning fixture that really saves what little hair I have left!

I modified a Primus shell by removing a 3/8" section from the bottom of the shell. Then, I removed 1/2 of the 1st and 6th chambers of the bible. (See illustration 4.) In a 3" length of 1"x1" channel iron, I machined a slot near the end to accept the shortened bible and fastened the modified shell to the channel with epoxy.

As you can see in the illustration, the shell should be located so the plug you are rekeying can be inserted upside down and backwards from normal. This allows you to load the pins through the opening in the modified shell, with the sidebar and finger pins being trapped in the shell. The alignment of the sidebar with the groove in the shell, allows old keys to be removed and new keys inserted for pinning.

Also, I cut a Primus blank down to just below a 9 depth in all chambers. I cut this special key laser style ((i.e., smooth) to allow the plug to be removed from the fixture and inserted into the working cylinder while fully loaded with pins and master pins.

This fixture makes my rekeying of Primus go much quicker. In fact, it's almost foolproof!

Ray Whitehead, CML
N. Carolina

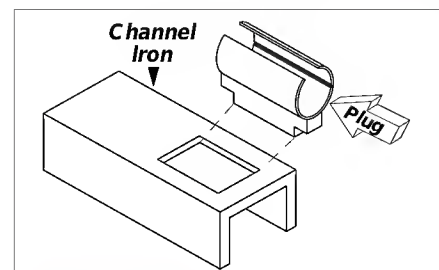


Illustration 4

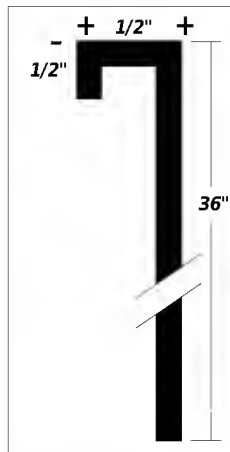
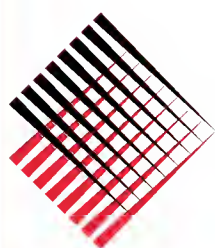


Illustration 3

*It's your
reputation.*



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Major Manufacturing Winner

Quick Storefront Opening

If you get a call to service the lock on an aluminum frame store front door and the problem is that the key won't retract the bolt because the thumb-turn, on the inside, is partially turned - try this:

Use a piece of bent spring steel (I used a vent window tool), slide it through the crack in the door and straighten the thumb-turn! Works easily and well. You can also try this method to open a locked store front when no key is available. You just have to keep working with your wire tool until you turn the thumb-turn all the way around.

Mike Corbett
Virginia

Jake's Grab Bag Winners

It's frustrating to carry expensive impressioning files in your tool box and have them wear out prematurely because their rubbing against each other and various tools in your tool box. I have found a simple, neat and cheap solution to the problem. I use Mr. Twister bits and those bits come in a plastic tube that can handily protect 6" impressioning file. The tubes that contain 8" fluted bits also work well for 6" files.

So, if you use carbide bits for safe work, don't throw the sleeves away that the bits come in. Instead, save them and use them to save your files.

Don Shiles
Maryland

Here's an easy way to modify a Slim Jim to grab those rods that require a large bow in the "Jim". Drill several 1/8" holes close to the tip of the "Jim" as shown in illustration five. Put a string or piece of nylon line through one of the holes.

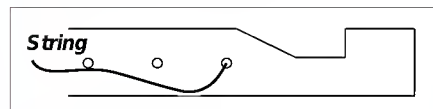


Illustration 5

Now when you come upon a linkage that requires a bend in the Slim Jim, just pull on the string until the "Jim" conforms to the radius that you need.

It is also easier to insert the straight Slim Jim into the door then trying to get a curved "Jim" between the weather stripping and the glass.

Werner Schulz
Germany

LIGHTER SIDE

Row, Row, Row Your Boat...

"I've got a problem," the customer said.

"You've come to the right place. We've got solutions," Neil replied.

"Well, it's sort of a half-way emergency," the man admitted.

"Then I guess we'll have to come up with a sort of half-way solution," Neil said, smiling.

It's nice, having employees with a sense of humor. We've learned you have to be a little crazy to keep your sanity, in this business.

I can't say we weren't warned. When Don first considered becoming a locksmith, someone told him, "Man, you don't want to be a locksmith. Most of those guys don't have both oars in the water."

Don has since perfected the fine art of one-oar rowing.

This skill often comes in handy. For example, one day last week Don responded to a call from a local grocery store parking lot. He later recalled that nothing was easy, that particular day.

"While you're getting the door open, I'm going to go inside and see if I can find Mother," the woman said.

Finally outwitting the dog, who would playfully slap his paw on the locking button as soon as it would pop up, Don got the door open. After waiting around a few minutes, he went inside the store to find his customer. There he finally spotted her in hot pursuit of an elderly woman who was zooming up one aisle and down another, pushing an empty grocery cart.



by
Sara Probasco

"Mother's a bit senile," the woman panted. "She loves coming to the grocery store, but she doesn't really like to shop. She just enjoys pushing the cart around. It keeps her busy and she's happy doing it, so I figure, why not! The only problem is, sometimes she's hard to catch when it's time to go home."

"Row, row, row your boat gently down the stream..." Don quietly sing to himself on his way back to the service van.

During the spring and summer months, Don spends a lot of his time up at the river, practicing his rowing. Love of the water is not what draws

him; it's the tourists who flock to our area at that time of year. Where there are tourists frolicking in the river, there are lost keys.

We have wondered if there is some ancient ritual of which we are unaware. Tourists seem to celebrate the Rites of Spring by standing on the river banks and tossing in their key rings as a sacrifice to the spirits of the rushing waters. Then they summon the nearest locksmith to make more keys. We are happy to oblige, despite the fact that the stretch of river in question runs between twenty and forty miles north of us.

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One day, Don answered five such calls. That was during a two-week period when he averaged three calls "up river," per day. We've considered retiring to the river, during the spring and summer months.

Late one afternoon, we received such a call from a telephone company employee. He was driving a late model Chevrolet pickup that was still in warranty. We suggested he contact Chevrolet Roadside Service for the key codes. [By the way, we have found this service to be most helpful! They are prompt, efficient, and save us a great deal of time and trouble - well worth a contact, if you haven't been using their services.]

Don had received the codes from Chevrolet Roadside and was preparing to leave the store when another call came in from Chevrolet Roadside.

"We have a '95 Chevy pickup at River Bend," the dispatcher said.

"Thanks," Don replied, "but we've already gotten the codes for that one. I'm on my way up there now."

"Well, this just came in," was the reply. "The man said he hadn't contacted a locksmith, so we offered to find one for him."

"OK. Give me the codes and I'll take care of it." Don had assumed there was a mistake, but the codes were not the same as the first set, even though the vehicle descriptions and the locations seemed identical.

He drove the thirty-odd miles to the site and was surprised to find the two identical vehicles parked side by side at a parking area near the river. The two telephone company employees were laughing and talking with a couple of other men when Don arrived.

"You guys are just careless," one of their buddies chided. "I carry my keys with me tubing all the time, and I never worry about losing them. I know right where they are, all the time."

"Yeah. I've heard that before," Don muttered under his breath.

"They're right here, in my snap-down pocket," the man continued. He

proudly patted his swimsuit pocket for emphasis.

Then his face clouded. He patted again. He pulled open the pocket and ran his fingers down into it. "Well, where are they?" he asked himself. Suddenly, he spun around, his glance sweeping the ground in frantic hope. "I can't believe this," the man moaned amid the guffaws of his buddies.

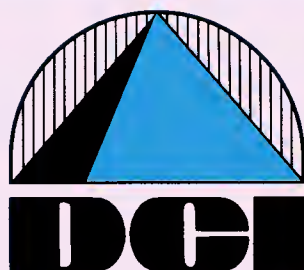
"No problem," Don said. "I'll get to you in a minute. In the meantime, here." He reached into his pocket for a coin.

"What's that?" the guy asked.

"A quarter. Make yourself useful. Find a phone and call Chevrolet Roadside for the codes."

Don was gone longer than either of us had expected, that evening, but he didn't really mind. As he was filling out the paperwork later and counting the money, I heard him singing softly to himself, "...merrily, merrily, merrily, merrily; life is but a dream."

TNL



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BITS & PIECES

Informative Tidbits for the Security Industry

Illinois Locksmiths made history this August when Illinois Governor James Edgar signed House Bill HB549 into law. Known as the Locksmith Licensing Act of 1995, this law requires all persons operating as Locksmiths in Illinois to carry a current Locksmith License.



by
Tom Seroogy

Provisions of HB549 include insurance as well as educational requirements for locksmiths practicing in Illinois.

Applicants for a Locksmith License are also asked to submit fingerprints to aid in running the required background check.

The law also addresses the question of obtaining proper identification before opening vehicles or premises.

HB549 culminates a two-year effort by The Allied Locksmiths for Illinois, a coalition of Locksmiths brought together by the four Locksmith Associations in Illinois under the Chairmanship of John Greenan.



John Greenan

All locksmiths in Illinois are urged to contact their local Locksmith Association for more information on this new law.

For more information, contact:

The Allied Locksmiths For Illinois, John Greenan, Chairman, at (312) 486-2030.

The Greater Chicago Locksmith Association, Kathy Zaniolo, President, at (708) 386-3334.

The Illinois Locksmith Association, Bill Pulley, President, at (217) 824-8696.

The Illinois-Indiana Locksmiths Association, Frank Schlessner, President, at (312) 927-9606.

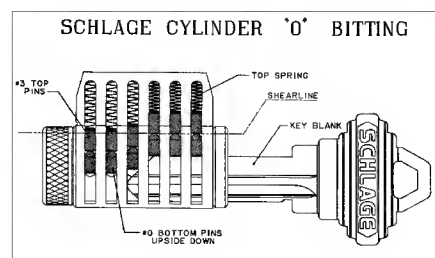
The Northern Illinois Locksmith Association, Bill Robertson, President, at (815) 544-9664.

All-Lock has discontinued the 1505 Chrysler Glove Box Lock, for 1960 and later Chrysler. No alternate source for these locks is known at this time. If any locksmith has a supply of these locks, give me a call at (708) 837-2044 and we'll pass your name and number onto any locksmiths inquiring about this part. (I generally get three to four inquiries a year.)

A Technitip regarding the cutting of Medeco keys has apparently raised some interest. The tip suggests cutting each cut about 1/8 cut deeper than the code card indicates to get a smoother operating key. Many of you have written in with varying reasons on this subject.

From HPC, manufacturer of the HPC 1200CM and the accompanying HPC Code Cards, Medeco made a specification change in 1981. This change is indicated on the Medeco code card produced after this date, and includes both the earlier, shallower depths, and the later, deeper depths. If your Medeco system is post 1981, use the deeper index marks on the card. If you have a card older than 1981, only one set of marks is present on the card. The correct code card from HPC is C36.

Schlage is now offering their cylinders 0 bitted. Previously the cylinders were supplied 1 bitted with matching keys. This, of course, meant anyone using a 0 in their key bitting would have to toss away the keys provided and cut a new set of keys. (See illustration above.)



Locksmiths should note the following, however:

- Cylinders are furnished with the 0 bottom pins upside down (to avoid spring damage).
- Cylinder bodies have #3 top pins in all chambers.
- Padlock cylinders are only partly inserted for easier removal.
- Interchangeable core cylinders ordered separately can be ordered 0 bitted. I-Core cylinders furnished as part of lock come 1 bitted.

The National Locksmith Automobile Association has been in progress for a year now, and have things taken off! Following is a list of NLAA material we've covered. For those not familiar with the NLAA, we are an association of locksmiths who do automotive work. Aside from a technical hotline, E Mail assistance after hours, and discounts on various automotive manuals, members also receive Bulletins and Newsletters on a regular basis.

Six times a year, members receive bulletins on six different vehicles. The bulletins cover key cutting specifications, opening procedures, key generation procedures and parts numbers.

Four times a year, members receive the NLAA's The Automotive Edge newsletter. Ranging from 45 to 65 pages, the newsletter covers all the latest information on servicing automobiles. Following is a list of the material currently available to NLAA members. If you have questions, call Tom at (708) 837-2044.

Continued from page 88

Newsletters:

The Automotive Edge, Winter 1995

Feature Article

Top To Bottom Camry

Starting Line

Reading GM Door Locks

GM's MATS system at work

Is MATS Enough?

Life In The Fast Lane

Lexus LS400 Service Procedures,
Part 1

Joe's Garage

GM Large Body Truck Door Lock
Removal

Dealing with Dealers

There's No Rainbow Over This Pot Of
Gold

Nuts & Bolts

Making Life Easy

Feature Article

Dale Does: High Tech Car Opening
Tools

Feature Article

Opening The 1994 Honda Accord 2
Door

Feature Article

A Car By Any Other Name

The Automotive Edge, Spring 1995

Feature Article

1995 Saturn Service

Starting Line

Servicing GM Ignition Locks

Under The Sign of Scorpio

Under The Sign of Scorpio

Life In The Fast Lane

Lexus LS400 Service Procedures,
Part II

Joe's Garage

The Delco-Loc II System Procedures

Dealing with Dealers

Predator Or Prey

Nuts & Bolts

Exploring VATS Decoders

Feature Article

Changes In Our Midst:
The 1995 Saturn

Feature Article

Bend Your Own Car Opening Tools

Feature Article

Getting Collared

Feature Article

Dale Does: HPC, the Ultimate

The Automotive Edge, Summer 1995

Feature Article

The 1995 Chrysler LeBaron

Bulletins:

Bulletin	Make	Model	Year
1.1	Chevrolet	Lumina (W Body)	1995
1.2	Oldsmobile	Aurora (G Body)	1995
1.3	Ford	Windstar	1995
1.4	Jeep	Grand Cherokee	1995
1.5	Chrysler	Neon	1995
1.6	Honda	Prelude	1994
2.1	Toyota	Paseo	1994
2.2	Honda	Passport	1994
2.3	Lexus	ES 300	1995
2.4	Saturn	SL 4-Door	1995
2.5	Chevrolet	Corvette (Y Body)	1995
2.6	Pontiac	Grand Prix (W Body)	1995
3.1	Ford	Thunderbird	1995
3.2	Geo	Prizm	1995
3.3	Toyota	Avalon	1995
3.4	Chevrolet	Camaro (F Body)	1995
3.5	Nissan	Maxima	1995
3.6	Chevrolet	S10 (S, T Body)	1995
4.1	Ford	Contour	1995
4.2	Honda	Del Sol	1995
4.3	Toyota	Terrel	1994
4.4	Ford	Festiva	1993
4.5	Suzuki	Sidekick	1992
4.6	Oldsmobile	Cutlas Supreme (W Body)	1990

Starting Line

Beginning The Ford 5-Pin

Fill It Up With Regular

GM's Non-Tilt Square Column

Life In The Fast Lane-Mercede

Mercedes Overview:

Chassis 201 and 202

Joe's Garage

Those Shameless Shearhead Bolts

Dealing with Dealers

Weapons And Ammo-Part 1

Nuts & Bolts

Those Amazing Force Tools

Feature Article

The Z-Tool Story

Feature Article

The Not-So-Amazing Ford Contour

Feature Article

Auto Parts

Bulletins:

(See chart above.)

We've all learned of the latest automotive locks systems being introduced for 1996, GM's MRD (VTD) and Ford's PATS. The locks for these vehicles are being supplied by Strattec. Following are the part numbers for the locks, plus, procedures for working on the PATS system.

For service procedures on GM's MRD system, see "GM's VTD Passlock," by Tom Mazzone, *The National Locksmith*, June 1995, page 11. The part numbers for the MRD ignitions are as follows: J Body

(Cavalier, Sunfire) - Strattec #703325.
N Body (Grand Am, Achieva, Skylark)
- Strattec #703227.

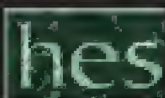
PATS is an option on the 1996 Ford Taurus and Sable, and is expanding to other models in 1997. The PATS system incorporates and electronic key, utilizing transponder technology. When inserted into the ignition, a transponder in the head of the key communicates with the control unit of the car. If the key is properly identified, the vehicle starts when the key is turned.

Even locksmiths can beat the dealer at PATS. To program the key into the car, do the following.

Cut a mechanical key on a PATS blank. Insert the key and turn to the ON position. A theft indicator light will flash for 15 minutes. Within 5 minutes after the indicator light has stopped flashing, turn the key to OFF and then back to Run. The indicator light will flash for 15 minutes. Repeat the process 3 times. (Note: Once a new key has been programmed into a car, the codes for all previous keys have been erased.)

To add additional keys, use the first key to cycle the lock from RUN to OFF. Within 15 seconds, put the new key in and turn to RUN. Repeat with up to 16 keys.

Part numbers for the keys are Strattec #597602 for Taurus, and Strattec #597603 for Sable. **TNL**



Common Solutions For

by
Jake Jakubowski

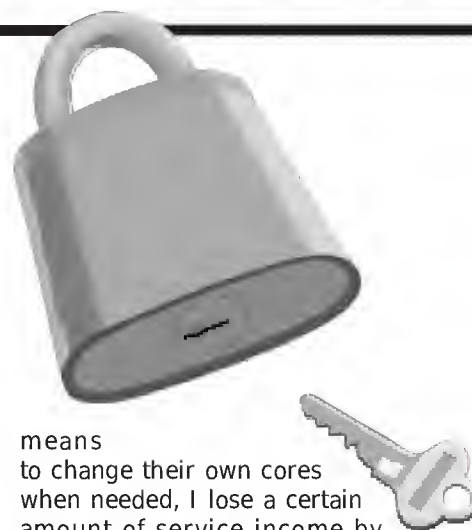
Padlocks have been around since at least Roman times and have been used to secure everything from temple gates to chastity belts. More recently, in the last hundred years or so, people like Harry Soreff (Master Lock), Samuel R. Slaymaker, John Junkunc (now, American Lock) and a dozen others have made the padlock an American icon. In fact, the word "ubiquitous" (meaning: existing, or seeming to exist everywhere at once) is a good word to describe padlocks today. Especially since padlocks are found in all shapes, sizes price ranges and applications (See "Who's Cookin' With Padlocks?" *The National Locksmith*, March, 1995). Yet, I'm amazed at how few locksmiths I talk to, truly recognize padlocks as a viable and ready-made profit center.

Regardless of whether you have a 10 person shop or are a one person, mobile locksmith, padlocks can be a viable income source that requires a minimal investment. This is especially true if you are willing to promote padlock sales; as opposed to simply having displays setting on your shop counter or carrying a few padlocks on your truck in order to fill the occasional request of the customer that wants to know: "Do you have something I can lock that shed door with?" What I mean by "promoting"

padlock sales is to actively look for ways to suggest to your everyday customers that padlocks are a practical answer to a variety of security needs they might have.

I'll give you a couple of examples. And you're right! Here are more of my "nontraditional alternatives." Both contain two key (no pun intended) elements that make them work for me. One element is: Customer Convenience. That is, finding ways to help the customer simplify their daily routine in a hassle-free manner and leaving them with the impression that you're a nice person to deal with because you appear to have their interests at heart. The other is: By exploring novel ways to fill customers' needs. (Some folks have characterized my novel solutions as "Curious," "Strange," and even, "Weird.") Simply put, you do that by saying, "Yes! I can find a way to do that!" - instead of saying, "No, I don't think that will work." Then, in a manner of speaking, you look for a way to make a square peg fit a round hole!

I have a customer who owns a number of fast food outlets. Early on, I had put his stores on a Best/Falcon IC core system, simplifying his rekeying problems when personnel changes made rekeying necessary. It is true that by giving the customer the

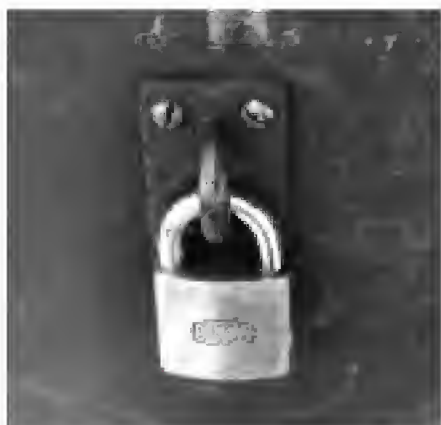


means to change their own cores when needed, I lose a certain amount of service income by not making as many service calls to rekey the locks on his stores. However, I do recombine his cores for him (which he sends me by mail); do any safe work they might have; and perform a lot of ancillary type services like installing door closers, viewers and repairing panic hardware. So, what I might lose on the one hand, I feel I'm more than compensated for on the other. Besides, being a one-truck, one-service person operation, I find arrangements like this beneficial, since I can only handle so many service calls in any one day.

At any rate, this customer calls me and wants to know if I can suggest a means of securing various cabinets, gates, and storage areas at his locations that are be secure from casual entry attempts by employees, vendors or the just plain curious without management needing to carry too many extra keys. I immediately suggested equipping these areas with hasps and using IC core compatible padlocks to lock them. (See *photograph 1.*) This way, the managers key and the owner's master keys operate the new padlocks as well as the entry doors to the restaurants.

Ahh! A quick, simple and decisive solution that was sure to be recognized by my customer as being no less than a brilliant and concise answer to his needs. Except...

The customer was concerned about the cost of the extra (reserve or back-up) cores that would be necessary to support over a 150 percent increase in the number of cylinders that are necessary to



1. Hasps and IC core padlocks are used to solve this customer's need.



2. Locking up the roof ladder using a IC core padlock.



Uncommon Problems

*Finding unique applications for padlocks
is a sure way to make extra money and keep a customer happy.*



3. All the padlocks were used to lock up interior areas such as security bars on a drive through window and the door of a freezer.

implement my suggestion. However, he did like the idea of being able to remain within the same keying system that he already had and if I could find a way to keep his rekeying costs down, the IC core compatible padlocks sounded like a fine idea to him. Back to square one.

Okay, the customer is not adverse to spending the money to have the IC core compatible padlocks installed, but he does not particularly care for the idea of needing to pay for rekeying an extra 15 or 20 IC core cylinders four or five times a year - even if there were no service call charges involved. He does like the idea of staying within the current system and the one-key-fits-everything (in each separate store) approach. Now, how to meld the two seemingly different concepts into one workable program? Simple, once I let go of the "can't see the forest for the trees" mind-set. (And, by the way, this solution will work on any six or seven pin master-keyed padlock compatible system - not just IC cores.)

In order to find an answer to the

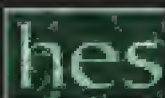
customer's needs, I first have to recognize that no part of the padlock application involved any critical or high-security areas. The primary idea is to prevent foodstuffs and equipment from "walking" out the back door. Another facet of the problem was to keep the gates around the roof access ladder and the dumpster from being opened by anyone who felt the urge to do so and thereby preventing anyone from being accidentally injured in these areas. (See photograph 2.) Again, not exactly a high-security need.

That gives me the idea to utilize the current IC core system whereby I can create a controlled cross-key process by intentionally eliminating (i.e. not pinning) the last three chambers in the padlock cores. Thus, allowing any change key in the system to fit any padlock in the system! The reason this works is that the first three chambers in the first 64 changes are held at the same pinning.

Now, I know there are probably a few folks out there that will get their dander up and take a shot at me about

"compromising the integrity of the system," and I want to put a stop to such foolish notions right here! First off, with the exception of the gate locks at the dumpster enclosure and the roof access ladder, all the other padlocks are inside the store and behind the counter where only current management and employees have access to them. (See photograph 3.) Consequently, a former employee or potential thief has to obtain (or retain) a key, enter the store, gain access to the storage areas and make off with whatever goodies they decided they want. Not impossible, but not likely either.

Secondly, and let me repeat myself, these padlocks are not used for high-security purposes or to secure areas where money or other valuables are kept. Therefore, this type of controlled cross-keying seems to me like an ideal answer to my customer's problem, while giving him the convenience of maintaining the single key system and without the need to rekey the padlocks each time a management change occurs. And, in



the event it becomes necessary to progression the master system beyond 64 changes, then only the third chamber needs to be changed in the padlocks to be compatible with the overall system for another year-and-a-half or so!

By pinning only the first three chambers of the padlock cores, all the change keys in the system fit all the padlocks. (See photograph 4.) And accomplish what the customer wants to accomplish until such time as they need to rekey the padlock cores. Using an unusual approach like this fills your customers needs, ensures you of a profitable padlock sale, and wins you points with your customer by catering to the customer's desire for convenience. Plus, you can do it without sacrificing the customers perimeter security.

Once again, I'd like to stress that any money you feel you might lose by not rekeying the padlocks each time there's a management change is more than compensated for by the other work you do for the customer over the years. Like the man said: "Trust me!"

All right, now for the second act of this play:

I have another customer that is strictly a padlock customer and all I do for them is rekey the padlock cylinders that they mail to me. They operate a bonded courier service for a pharmaceutical company and transport various restricted items and documents from one location to another around the country. All of the pouches and containers the couriers use are required to be padlocked at all times. The fly in this ointment is that after every trip, by each courier, the locks need to be changed! In other words, for security reasons, the same padlock cannot make two trips. And, since each trip might consist of half a dozen pickups and deliveries between the starting point and final destination, the courier needs to have a key to that day's pouch. To complicate matters even further, my customer's customer wants a "master key that opens any pouch or container" at the beginning or end of it's itinerary.

Before this customer called me, they were going through about a gross of padlocks every other month, and encountering chronic problems with the trip origin or destination



4. Using the first three spaces on the Best/Falcon IC core style locks is actually the three cuts closest to the tip of the key.

office not having the proper master key to open the locks. Here's how I "solve" this customers problem.

First, I sell them 60 ABUS 83/45-300 rekeyable padlocks, with the new "Z" bar feature allowing you to utilize these padlocks as key-retaining or non-key-retaining padlocks. (See photograph 5.) The 83/45 series comes with a six pin plug that is pinned in only five chambers, which I masterkey to all six. Also, I sell them 60 extra cylinders for those same padlocks! Then, I show my customer how to change the cylinders!!! Now, I know there's gonna be folks out there that will be screamin' for my blood for showin' a civilian a trade secret. But! Before anyone gets super hyper over me tellin' a good - a really good -customer how to save money - hear me out. I master keyed these locks and cylinders using a standard two-step



5. The Abus 83/45-300 padlock is perfect for this application, and a real money maker.

progression method that will, in essence, give me over one thousand theoretical changes.

That master key system gives me enough changes to keep the same padlocks in service for a little over a year. Each of the main offices of the pharmaceutical firm has it's own master key. Each courier has a new change key for each trip and I get 20 or 30 cylinders to rekey every other week or so! If, in the event a master key is lost or unaccounted for, then I just need to run off a different master key system and rekey all of the padlocks and cylinders at one time! How's that for gettin' novel?

At any rate, the point of all this is to show you that there is more to padlock sales and promotion than selling the occasional padlock to a little old lady so she can lock up her shed or selling a car dealer a padlock for his tire room that's keyed to the shop key. By looking around for opportunities to "find a need and fill it" - in a novel, creative, curious or maybe, even a strange or weird manner - you just might walk away from your next padlock sale with some serious shekels in your pocket!

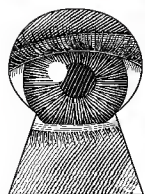
Y'all heah me, now? **TNL**

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SRI and Steve Young
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THRU THE KEYHOLE



A Peek at Movers & Shakers in the Industry

ATTENTION MANUFACTURERS AND DISTRIBUTORS: Would you like your company and products to be profiled in *Thru The Keyhole*? Please call Managing Editor, Tom Seroogy at (708) 837-2044.

HPC Acquires Scotsman Security Products

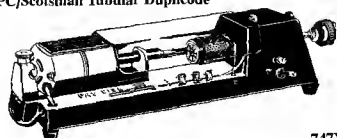
What does the name HPC conjure up in the minds of locksmiths? Answers to this question will vary from "key machines," to "key cabinets," to "code books," to "car openers," to "pick sets," to "software," to "locksmithing tools." In reality, all of these answers are correct. Jerry Hoffman, President/CEO of HPC, Inc. has created a company that is exceedingly diverse in its product line, while remaining focused on its primary market, locksmiths.

HPC, Inc. has been designing and manufacturing locksmithing equipment for over 35 years and has established themselves as a leading force in the locksmithing industry. In an ongoing effort to widen its product line, HPC regularly designs many new products, as well as improving existing products.

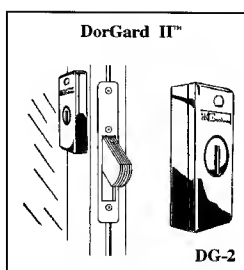
HPC's newest addition is the acquisition of Scotsman Security Products. The Scotsman product line greatly enhance HPC's already vast line of key machines and door hardware.

The four Scotsman key machines round out their tubular line and fill in the previous gaps in the low end and the code cutting tubular market. The Scotsman door hardware is an excellent addition to HPC's door hardware line. The Scotsman

HPC/Scotsman Tubular Duplicode™



747XU



DorGards are unlike any others on the market. Due to their unique nature, they have already been specified into the prints for banks in Canada and are becoming very popular in the United States as well. The DorGards, along with the Scotsman CylGards, provide a complete security solution.

All production will take place in HPC's Schiller Park facility. Stock numbers and pricing will remain the same.

For more information on any HPC or HPC/Scotsman product, please contact your authorized HPC Distributor or HPC direct at (708) 671-6280.

Let S&G Electrify Your Profits

You know the many benefits Sargent & Greenleaf's 6120 Electronic Combination Lock offers your customers. But here's something else to consider—each 6120 you sell earns you almost three times more profit than a standard mechanical lock, dial and ring.

S&G wants to help you sell the 6120 and electrify your profits with the 6120 Sales Presentation Kit. The free

kit includes four unique tools to assist you in new or retrofit sales.

A Sales Presentation Guide will help you walk through a short, informative pitch on the 6120 with your customer. The sales guide highlights the many benefits of the 6120, illustrating how much quicker, easier and more secure the 6120 is to operate than a mechanical lock.

With the kit, you'll also receive a full-color brochure, point-of-sale sticker and operating instruction sticker. The brochure is designed as a leave-behind, enhancing your presentation and allowing your customer to refer back to information about the 6120. The point-of-sale sticker provides exposure for the 6120 in your showroom, helping make your customer aware of the availability and advantages of electronic locks. And, the operating instruction sticker gives your customer an easy reference after the lock has been purchased and installed.

The 6120 is also easy for you. Its footprint fits those of most mechanical locks, allowing quick retrofit without touch-up painting. Also, a bolt-through back cover allows installation without removal of the lock's back cover.

As you probably know, there's no elaborate procedure needed to open a 6120. All your customer needs to do is punch in six numbers on a keypad. The ease of the 6120 also saves you time, eliminating phone calls from customers who have forgotten how to open their safes.

Several key security elements position the 6120 far ahead of standard mechanical locks. A 0-to-9 minute delay option gives your customer the opportunity to program the 6120 to meet specific time delay needs (S&G's 6121 gives a 0-to-27 minute delay option). Time delays serve as a key deterrent to holdups, forcing the perpetrator to remain at the scene of



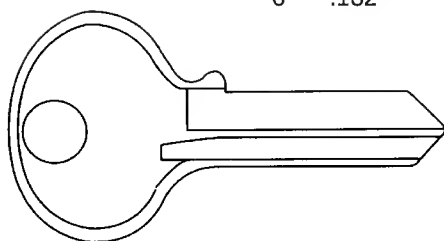
Continued on page 107



KEY CODES

Hudson H0001 - H3000

Depths		Spaces	
0	.290	1	.191
1	.272	2	.316
2	.254	3	.441
3	.236	4	.566
4	.218	5	.691
5	.200		
6	.182		



PROFILE

Keyblanks

Hudson H20
 Ilco 1003M
 Taylor R22B
 Jet HL1
 Curtis CO106
 Star 5AU1
 ESP CO106

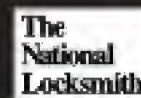
HPC

Code Card: C26
 Cutter: CW1011
 Stop: Shoulder

Framon

Cut start: .191
 Cutter: FC8445
 Cut To Cut: .125
 Spacing Block: #1
 Stop: Shoulder
 Clamping: Lay clip flat
 on left side of jaw. Slide
 key up to clip.

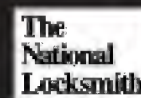
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Hudson

H0001 - H3000

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Hudson H0001 - H3000

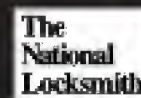
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NATIONAL
AUTO LOCK SERVICE, INC.

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Continued from page 99

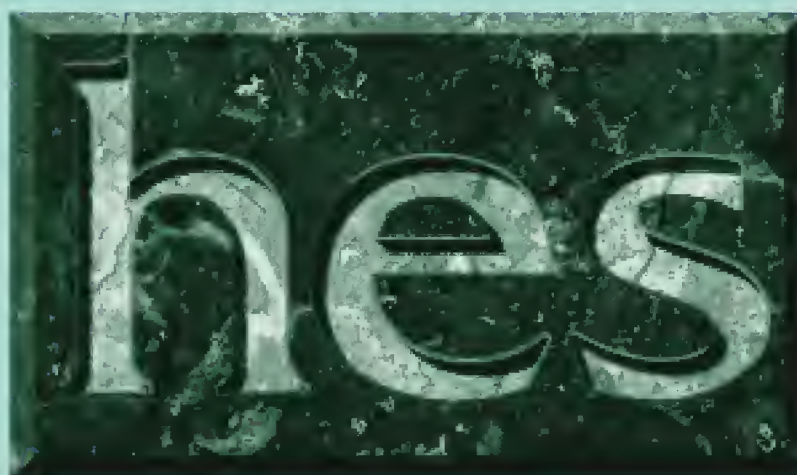
Hudson H0001 - H3000

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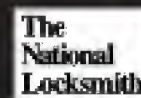
Hudson H0001 - H3000

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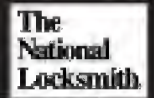
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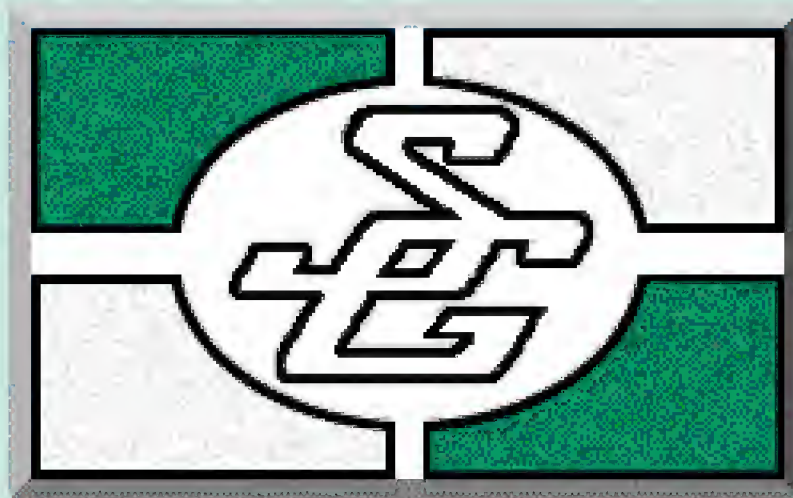
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H1531	42532	H1562	13511	H1593	36543	H1624	23656		
H1532	12250	H1563	50232	H1594	44046	H1625	30410		

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THRU THE KEYHOLE

Continued from page 95

the crime. A motorized deadbolt prevents the dangerous habit of day-locking, automatically relocking the safe after six seconds. And, an automatic lockout activates after four consecutive incorrect code entries, preventing trial-and-error attempts to open the lock.

The 6120 features a master code, eight additional user codes, and 1 million possible combinations. The lock is resistant to physical, static electricity, vibration and voltage attacks, and is U.L. Listed Group 2 with Group 1 approval pending.

Standing behind the 6120 is Sargent & Greenleaf and its 138 years of experience. S&G has established itself as the leader in the security industry, and the company continues to develop systems that protect everything from personal possessions to top-secret government documents.

To order free 6120 Sales Presentation Kits or components of the kits, like the full-color brochure, write: Sargent & Greenleaf, Dept. SPK, One Security Drive, Nicholasville, KY, 40356. Or fax (800) 634-4843. **TUL**



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TEST DRIVE



Taking Industry Products for a Spin Around the Block

DEWALT'S DW994KQ CORDLESS DRILL

PRODUCT: The DeWalt DW994KQ Cordless Versa Clutch Driver/Drill. Manufactured by DeWalt Industrial Tool Company, P.O. Box 158, 626 Hanover Pike, Hampstead, MD 21074. (800) 433-9258. Available through most large tool suppliers. Price varies, but suggested retail is \$430.

PRODUCT DESCRIPTION: The DW994 heavy duty 14.4 volt cordless drill and the DW9115 15 minute battery charger. Two screw driver bits are also included. The drill and charger are packaged in a heavy gauge steel case.

FRIENDLINESS: This unit is extremely user friendly. The various switches are well placed for quick adjustment on the fly. Including the keyless chuck eliminates the need for a chuck key, another friendly feature. And, despite having the highest voltage battery pack on the market, the drill is sleek, very well balanced and fits well in both large and small hands.

FEATURES: This particular drill scores high points in the feature

department. Most predominant is the full 1/2" keyless chuck.

While variable speed and reverse are almost a give-me these days, this unit also allows the user to choose between a drill or driver mode. In the drill mode, the chuck is engaged at all times. In the driver mode, the chuck is only engaged when pressure is being applied to the chuck. A nice feature for driving in screws.

Two speed settings allow for high torque, low speed drilling at variable 0 to 450 rpm; Or, low torque, high speed drilling from 0 to 1400 rpm.

Although numbered 0 to 11, half settings allow for 23 torque settings on this unit.

COMMENTS AND SUGGESTIONS: You may remember our review of the DW994KQ little brother, the 3/8" chuck DW991, back in the November 1994 issue of *The National Locksmith*. Shortly after that review we received the DW994 and have been testing it since. And, what a dream.



2. Despite being cordless, 2-1/8" holes were handled effortlessly.

While nothing over a 1" bit is recommended by DeWalt, this unit has done non-stop drilling of 2-1/8" holes in residential and commercial wood and steel doors. Battery life continues to remain exceptionally strong and long. Battery charging has never exceeded 15 minutes.

If anything can be added to this unit, a removable handle near the chuck would certainly add some balance and control when hogging out some of the bigger holes.

CONCLUSION: Except where a large number of holes have to be drilled, there's no need to use a standard drill anymore. This little monster handled everything a 1/2" chuck 110 volt drill does, and with less aggravation. While this drill is a tad bit larger than the smaller 12 and 9.6 volt, 3/8" chuck variety, we had little trouble using it in even some of the tightest spaces encountered by locksmiths.

TNL



1. DeWalt's DW994KQ cordless drill.

DESCRIPTION:
DeWalt DW994KQ Cordless Versa Clutch Driver/Drill.
COMMENTS:
Powerful, well balanced, and versatile.
TEST DRIVE RESULTS:
Fully capable of replacing the standard 110 volt drill for most applications. A monster even when drilling large, deep holes.